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ABSTRACT

A 4-year project was conducted at the University of Tennessee College of Nursing to identify occupational health nursing content essential in baccalaureate education for professional nursing. In the process of determining content, a review of relevant literature was made, and a theoretical framework was developed which consisted of an integration of Leavell and Clark's levels of prevention approach to health care, and Maslow's hierarchy of needs personality theory. This theoretical combination resulted in 25 categories, each labeled with a level of prevention and basic human need. Within each category, competencies needed by a nurse in occupational health care were identified, and corresponding academic content was identified and delineated into educational levels (baccalaureate, graduate, and inservice). The theoretical framework was then utilized to assess the content of one baccalaureate nursing program. Data were collected by observing classes over a 3-year period, and a content analysis was conducted. Findings revealed that the theoretical framework provides a method for structuring the curriculum desired and that the methodology can be applied to all aspects of the nursing curriculum. In addition to content analysis, items for an achievement test were developed and a standardization process was started. (SB)

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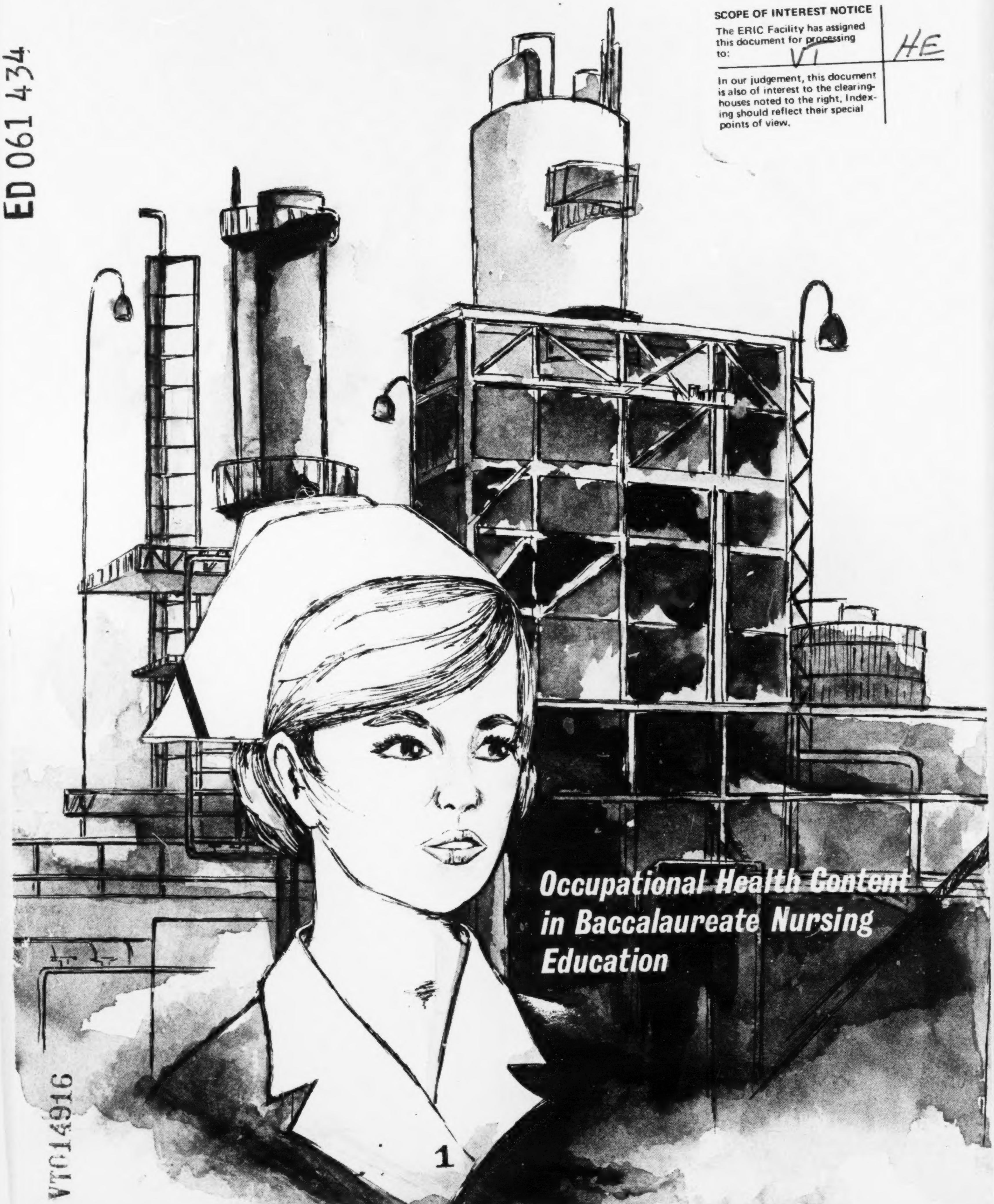

Occupational Health Content in Baccalaureate Nursing Education

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Occupational Health Content in Baccalaureate Nursing Education

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FOREWORD

Nursing leaders have long recognized the significance and contribution, both real and potential, of occupational health nursing as part of the nursing force in this country. In 1963 an ad hoc committee pin-pointed the need for clarification of the essentials of occupational health nursing in relation to the baccalureate nursing curriculum. Steps initiated by the committee led to the study herein described.

The project was conducted with an open and investigative approach. Its course was influenced throughout by the dynamic nature of nursing itself and the significant changes occurring in the health field during the years of its activation. These influences are reflected in the delineation of the role of the occupational health nurse and in the resulting framework for curriculum study and design.

The focus of the project as completed extends beyond the occupational health setting. As interest and conviction have grown regarding the scope and significance of comprehensive health planning and care, so nursing, with other health professions, has moved from restricted settings into broad community focus.

This then is the base, in education and service, from which this study is derived. And this is the core, with its changing concepts of health and health practice, which has shaped its methodology and findings.

The project is itself a beginning step, reflecting as it progressed the changing currents of our time in professional education and service. It is our hope and belief that the framework and methodology, and the subsequent findings and recommendations, will form a sound base for continuing study and implementation destined to strengthen both nursing education and nursing practice.

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Professor of Public Health Nursing*
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(*Now retired)

PREFACE

This manual presents a methodology for identifying specific content in a curriculum. It further presents the utilization of this methodology in delineating the occupational health nursing content in baccalaureate nursing education and suggests its application to graduate education. The process and content should be of value to individuals concerned with nursing education and nursing practice.

In each chapter the processes involved are clearly described, and the relation between process and content is delineated. A theoretical framework is presented utilizing an integration of a theory from public health and a theory from psychology. Pertinent literature is reviewed, competencies and content for occupational health nursing are identified, and realistic immediate and long term recommendations for leaders in nursing education and for practicing occupational health nurses are made.

Ruth Neil Murry, Dean
College of Nursing
The University of Tennessee

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The Principal Investigator acknowledges with appreciation the cooperation, assistance, and patience of The University of Tennessee College of Nursing faculty and students. Special acknowledgment goes to Dean Ruth Neil Murry; Julia D. Smith, Project Director; W.T. May, Ph.D., Research Consultant; and the members of the Faculty Advisory Committee, Mary Morris, Margaret Ann Newman, and Ruth Bryce. Special Recognition goes to the secretarial personnel involved in the typing and clerical details necessary to complete the project.

Appreciation is also expressed to the staff of the Mooney Memorial Library at The University of Tennessee Medical Units for their unfailing cooperation. Valuable assistance was also provided by the librarians at Southwestern-at-Memphis, Memphis State University, and Memphis and Shelby County Public Libraries.

Particular acknowledgment is made for the contributions of Mary Louise Brown, Chief Nurse, Occupational Health Program, who served as Project Officer. Without her interest, efforts, and support there would not have been a project. The contributions of Jane Lee and Ruth Reifschneider, Nurse Consultants, and Lorice Ede, Program Editor, of the Occupational Health Program in reviewing and making recommendations regarding the content are gratefully acknowledged.

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Thanks are due to many other groups and individuals, too numerous to mention, who contributed knowingly and unknowingly.

M. Keller

THE THREE BEST THINGS

WORK

Let me but do my work from day to day,
  In field or forest, at desk or loom,
  In roving market-place or tranquil room;
Let me but find it in my heart to say,
  When vagrant wishes beckon me astray,
  "This is my work; my blessing, not my doom;
  "Of all who live, I am the only one by whom
"This work can best be done in the right way."

Then shall I see it not too great, nor small,
  To suit my spirit and to prove my powers;
  Then shall I cheerful greet the labouring hours,
And cheerful turn, when long shadows fall
At eventide, to play and love and rest,
Because I know for me my work is best.

Henry Van Dyke
(1852-1933)

The Poems of Henry Van Dyke. New York: Charles Scribner's Sons, 1920, p. 166. Quoted by permission of the publisher.

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CHAPTER I

INTRODUCTION

In July 1963, an ad hoc committee, composed of representatives of the National League for Nursing (NLN) and the Occupational Health Program* of the Public Health Service, met to explore ways and means for more adequate integration of occupational health nursing content into the baccalaureate curriculum. It was the consensus of this group of nurses that the purpose of the discussion was

> not an attempt to make a specialty of occupational health nursing but rather an attempt to identify content in occupational health in relation to the basic curriculum. It is believed that in the basic content there is much that is applicable to the industrial setting or to the nursing of the employed adult. There is also content from occupational health nursing possibly not presently included that would contribute to the preparation of professional nurses in baccalaureate programs.(1)

The committee recommended the initiation of a project to test three hypotheses:

1 There is content in occupational health nursing that provides an essential contribution to the preparation of professional nurses in a baccalaureate program.

2 This content can be identified and taught on a baccalaureate level.

3 This instruction can be evaluated.

It was further recommended that the project be carried out at two NLN-accredited collegiate schools of nursing in colleges or universities having a department of occupational health or public health in the medical school and that the persons selected to conduct the project have faculty appointment with freedom to develop the project.(2)

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*The Occupational Health Program is now the National Institute for Occupational Safety and Health, Public Health Service, U.S. Department of Health, Education, and Welfare.

At a meeting on February 27, 1964, the following general approach was suggested:

1 Review, identify, and organize current concepts and learning experiences in the literature regarding occupational health.

2 Review and identify content and learning experiences within the objectives of current school curriculum.

3 Determine methods of modifying and implementing occupational health components in the program.

4 Help faculty try out and implement the above.

5 Evaluate the project program.(2)

The University of Tennessee College of Nursing and the Boston College School of Nursing were selected by the Occupational Health Program of the U.S. Public Health Service as sites at which to conduct this project. Each school was to work independently in developing an approach and in carrying on the project. The Boston College project, which started in September 1964, was planned for one year. The University of Tennessee project was continued for four and one-half years, commencing in February 1965.

This manual is based on the philosophy, approach, methodology, and findings of the project as pursued at The University of Tennessee College of Nursing. A Faculty Advisory Committee for consultation in the planning and evaluating phases consisted of the incumbent faculty, the chairman of the research committee, and the instructor for the course in scientific methods in nursing. The Dean of the College, the Project Director, and the Principal Investigator met with the Faculty Advisory Committee as needed. Each visit by the Project Officer included a meeting with this group. As the project progressed, consultations were held with a committee of occupational health experts and a committee of nurse educators.

The 1963 ad hoc committee was motivated by historical and existing developments in the fields of occupational health nursing and professional nursing education. Their original concerns were influenced by perhaps more significant changes in health concepts, legislation, and planning than have occurred in any similar timespan in recent history.* In particular, a more comprehensive concept of health and the necessity for change in the delivery of health care services are clearly manifested in the planning for comprehensive health care for individuals and families in their normal environment.(3, 4, 5, 6)

---

*See Appendix A for historical background of education for occupational health nursing.

As writers from various health disciplines(7, 8, 9, 10, 11) have noted, health care encompasses more than the traditional preoccupation with the cultivation of sound health habits and the detection of diagnosable disease entities. The health of the individual and the family must reflect a well-integrated dynamic balance of physical, psychological, socio-economic, and spiritual factors.

To implement the concept of comprehensive health care there is need for health professionals who understand, accept, and practice promotion of health as well as prevention of disease.(12) Every individual, at any given moment is somewhere on the health-illness continuum; and the ideal state is to be at the health end, vertical and active. But the worker can apparently be vertical and active and yet be the host of a latent disease process. Promotion of health for the worker as well as for the general public includes making the well person a more fully-functioning individual, thereby preventing the completion of the epidemiologic triad (host, agent, and environment) leading to a diseased state.

Technological and social changes in our society are bringing about new ways for the delivery of health care. Since these changes directly affect nursing practice and nursing education, nurses must expand their role to meet the challenges.

It is imperative that knowledge and utilization of human ecology be made an integral part of comprehensive health planning and care.(13) Ecological factors, be they from the natural environment, the family, work, school, or community, must be assessed in terms of promotion of or interference with health. As for the labor force, the increasing population of the United States means an increasing number of employees. Projected figures indicate that the employee population by the year 2000 will increase by about 42 million (or about 50 percent) over the present figure of 80 million.(14)

The work setting has been influenced and will continue to be influenced by increasing automation, computerization, unionization, and work-force mobility, and by decreasing hours at work per week. These all influence health. Exposure to new chemical and biological hazards will present other problems. Kahn and Weiner have projected 100 significant technological innovations by the year 2000.(14)

The culturally-different and minority sectors of our population will have greater numbers in the work force. These individuals bring multi-faceted health problems to the work setting; for example, poor nutrition, high incidence of chronic and infectious illness, and different patterns of social and emotional living.(15, 16)

In the light of the multiplicity of these changes, nursing must reassess its role as a member of the community health care teams. These teams will include members representing more than the traditional health professions.(17, 18, 19) Certain to be included are the consumers of health care services - the indigenous population either at the work setting or in residential areas. Nurses must be aware of all changes that affect health. Particularly, in a work-oriented society such as ours, the influences on health of factors in and out of the work setting cannot be neglected. Probably *every* interaction between nurse and the identified patient is influenced in some respect by a work environment.

In several western countries an emerging awakening of interest in "other than hospital" nursing may be noted in nursing students. Their job preference is towards practice in the community,(20, 21, 22, 23) and more and more they are beginning to seek positions that involve practice in community health.

The curriculum evaluation and the course content discussed in this manual reflect the trends outlined above in the health field and the labor force.

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CHAPTER II
REVIEW OF THE LITERATURE

Education

Various conceptual models have been developed for viewing and organizing the curriculum content of educational programs. Some models are based on educational objectives; some, on content. Tyler's approach for analyzing and interpreting the curriculum content and instruction, which is based on the objectives of the program, divides the objectives into two dimensions: behavior and content.(1) He identifies seven components of the behavioral aspect: (1) understanding of important facts and principles, (2) familiarity with dependable sources of information, (3) ability to interpret data, (4) ability to apply principles, (5) ability to study and report results of study, (6) broadness and maturity of interests, and (7) nature of social attitudes. Content is identified in operational terms as a part of the objective. Accomplishment of objectives is evaluated in terms of behavioral outcomes.

Bloom and Krathwohl use a taxonomy of educational objectives as a means for organizing objectives, behaviors, and evaluation techniques.(2, 3) Objectives are classified as cognitive (related to recall and to solving an intellectual problem), affective (related to a feeling tone, emotion, or attitude), and psychomotor (related to a motor skill or to neuromuscular coordination). The cognitive is further divided into knowledge, comprehension, application, analysis, synthesis, and evaluation. The affective is divided into receiving, responding, valuing, organizing, and internalizing with behavior change. The psychomotor domain is not yet sub-divided. Values of this system include clarification of objectives, adaptability to developing evaluation tools, and adaptability to evaluating educational programs.

Maccia developed a scheme called SIGGS - an organization of Set, Information,Graph, and General Systems theories.(4) It has been used to develop general propositions about education. No relevant literature evaluating the use of this model was found.

Chickering used the dimensions of student development based on developmental tasks, needs, and student typologies. (5) Specific aspects of student development thus identified were the development of competence, autonomy, identity, purpose, and integrity; the mangement of emotions; and the freeing of interpersonal relationships.

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Mayhew suggested the use of a two-way chart for conceptualizing curricula. He proposed two dimensions, one consisting of the substantive areas, and the other of the skills, traits, and attitudes necessary in utilizing the substantive materials. He described the value of this concept as follows:

> If the collegiate curriculum can be visualized as this two-way chart with the divisions of human knowledge extending along the horizontal axis, the skills, traits, approaches and attitudes along the vertical axis, then it is possible to plot the most important curricula matters which should be offered. By describing a curriculum concept in such form, we can readily expose where imbalances and omissions occur.
>
> This construct may be viewed as the first step in thinking about either a college-wide curriculum or the offerings of a division or department, or even the construction of a single course. Once the framework is established it provides the limits within which the courses can be built, added or subtracted...The chart provides a curricular medium which imposes quite definite, quite stringent, and quite severe limitations within which the creative energies of the faculty must operate. The faculty should always have the right to put anything it wants into the curriculum, but within sufficient limitations...(6)

Other conceptual models for education generally have been developed and described,(7, 8) but the thread that runs through the literature is that there exists a definite need for an organized approach to the systematic identification of the content and objectives of an educational program.

Nursing

Nursing education also has had established its need for theories or models on which to base curriculum construction. Attempts in developing such a theory in a scientific manner are underway. Interested nurses and non-nurses have presented various approaches.(9, 10, 11)

Gunter suggests the need for a theoretical framework composed of three parts: (1) a theory of the organism, (2) a theory of medicine, and (3) a theory of interpersonal relations.(12) She also suggests that the combination of such theories specifically applied to nursing will provide the uniqueness necessary to separate nursing from other functioning areas.

King has identified the levels of operation for nursing as (1) the individual, (2) the group, and (3) society.(13) She suggests that these be integrated into curriculum structure.

In the past few years many approaches for identifying and organizing various nursing curriculum content areas have been developed. In 1961 the National League for Nursing established a sub-committee on Maternal and Child Nursing Content to develop a process for identifying essential content in nursing. Their methodology included identifying a nursing problem from which the essential content needed to resolve the problem would be determined. The two aspects of the content were specific information and the frame of reference for nursing action. This group defined essential content as "the knowledge that a graduate from that type of program needs in order to assume the nursing role for which that program prepares its graduates."(14) No literature was found evaluating the use of this approach.

The Baccalaureate Seminar of the Western Council on Higher Education for Nursing conducted a study to develop an approach for identifying content essential to baccalaureate programs in nursing. The selected approach identified four perimeters for the containment of essential content: (1) philosophy of baccalaureate education in nursing, (2) characteristics of the graduate of a baccalaureate program in nursing, (3) characteristics of today's college-bound high school graduate, and (4) implications for the faculty who will be teaching today's college-bound high school graduate. Essential content within these perimeters might be based on (1) nursing needs (physical, environmental, emotional, instructional, coordination of service) and (2) the background factors from the biophysical and psychosocial sciences. Based on this framework, essential content was described in six statements:

1 Learning experiences in identifying physical and environmental needs are essential in all clinical settings.

2 Learning experiences related to emotional needs, needs for instruction and information, and for coordination of patient services should be emphasized strongly in all clinical settings.

3 Learning experiences in communicating and knowledge of the value and effect of communication between individuals and/or groups are essential throughout the total program.

4 Knowledge and learning experiences related to growth and development throughout the life continuum are essential to human interaction.

5 Knowledge of social forces influencing individual and/or group behavior is essential for identification and evaluation of nursing needs.

6 Learning experiences which provide opportunity to develop independent thought and action in the identification and evaluation of nursing needs are essential.(15)

The Western Council on Higher Education for Nursing also conducted another project to clarify and delineate nursing content at the graduate level.(16, 17, 18, 19) However, over the years, this became a project of determining approaches only. Each speciality area selected a general theoretical framework which was used to approach the development of content in that specific area. Community health nursing selected Parsons' theory of action; medical-surgical nursing, the nursing process and related patient and illness characteristics; psychiatric nursing, nurse-patient interaction; and maternal-child health nursing, the concepts of pattern maintenance, pattern functioning, coping, and vulnerabilities to stress and crisis.

Sand used the school objectives as the framework for a curriculum study at the University of Washington.(20) The objectives were separated into Tyler's two components, behavior and content. Categories identified in the behavioral component included (1) understanding of facts and principles, (2) critical thinking, (3) controlled and coordinated motor activities, (4) attitudes, (5) interests and appreciations, (6) communication skills, and (7) habits. Areas of content included (1) the nurse as a person and as a citizen (2) the body of scientific and cultural knowledge, (3) the agency and those it serves, (4) the nursing care of the patient, and (5) the nurse's heritage and responsibilities. An important result of this study was the recognition of the problems associated with curriculum and student evaluation.

A decision-making model utilizing the problem-solving process constituted the theoretical orientation for the curriculum development at the University of California. This model provided both a "consistent and systematic way of thinking about nursing interventions" and a common way of organizing the knowledge of the curriculum.(21) One course organized within this framework combined three theories in the organization of content: Simon's definition of organizational behavior of employees, Getzel's theory on administration as a hierarchy of subordinate (superordinate relationships with a social system), and Peplau's experimental learning process theory.(22)

Thus, at the present stage of theory development in nursing education, a variety of approaches are being considered and assessed.

Occupational Health Nursing

Several projects related to integration of occupational health nursing content into a nursing curriculum have been conducted by nurses. In 1949-51 Smith conducted a survey at Yale University School of Nursing

> to study the curriculum content with respect to occupational health in order to determine areas and scope of integration within the curriculum; to find new methods of weaving it throughout the various courses and activities into clinical nursing; to explore possibilities for enrichment of the present content; and to aid in locating additional hospital and community facilities for teaching purposes in occupational health.(23)

She determined through conferences with the dean and faculty, reviews of course outlines, and visits to classes and clinical experience areas utilized for student learning that content related to occupational health was adequately integrated into that specific curriculum.

Brown described ways in which the knowledge and understandings needed by the nurse in industry differ from those needed in other areas of nursing practice.(24) She advocated provision of learning experiences for students through course integration of these identified differences.

In 1955 Ditchfield stated that "probably the largest amount of curriculum content essential to the preparation of the nurse for the field of occupational health nursing is content that is also essential to all fields of nursing."(25) She recognized that the first problem was not that of integrating occupational health nursing content into the curriculum, but rather the identification of content basic to all nursing, including content specific to the understanding of occupational health nursing.

In 1957 an NLN-AAIN Conference Committee prepared a guide for including occupational health nursing in the curriculum.(26) The sixteen principles developed by this group were used in formulating a means of evaluating the occupational health nursing content. The guide included evaluative statements for assessing application of principles in the area of occupational health; attitudes, understanding, and abilities basic to general practice in occupational health nursing; and suggested methods of acquiring the necessary understanding and ability.

Henriksen in 1959 found that the professional curricula in six collegiate schools of nursing did prepare nurses for beginning positions in occupational health nursing, but that the occupational health aspects of a health problem were underdeveloped.(27) The methodology used to reach this conclusion included questionnaires concerning nursing activities in occupational health that were given to practicing occupational health nurses, occupational health physicians, and employers and employees. A faculty checklist of abilities was then developed from the responses to the questionnaires. The faculty was asked to evaluate their curriculum in the following content areas: organization and program planning, employee benefits, employee services, records and reports, health services, safety, community relations and participation in professional activities. A second check list of understandings and abilities based on representative functions of the occupational health nurses was also used by the faculty in evaluating curriculum content.

A workshop was held in 1962 by occupational health nurses and nursing educators to develop ways of providing opportunities for nursing students to gain fundamental understandings about the health of the adult worker. Specific goals of the workshop were:

> 1 Increased understanding of the need and potential for providing basic nursing students with fundamental concepts concerning the health of the working person.
>
> 2 Identification of areas in the basic curriculum which may provide students with learning experiences related to occupational health, and
>
> 3 Identification of occupational health resources, within the school and the community, and ways in which they may be utilized to enrich the students' knowledge and understanding of occupational health.(28)

A project was conducted at Boston College by Summers "to identify the occupational health components in baccalaureate nursing education and to determine whether there was a need to strengthen them."(29) A checklist of eighteen major subject areas was developed and was used by the faculty to assess curriculum content. Tabulation of results showed that twenty-nine items (fifty-six percent) on the checklist were not considered to be included in the curriculum.

In spite of these efforts, there have apparently been no studies that utilize a theoretical framework as a criterion for the occupational health content data to be collected by means of a study of the nursing education process.

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CHAPTER III

THEORETICAL FRAMEWORK

Occupational health nursing is in the same transition that is affecting all nursing. With emphasis shifting from emergency care of occupational diseases and injuries to promotion and maintenance of health, a different type of theoretical framework from those discussed in Chapter II seemed essential for assessment of occupational health nursing content in a baccalaureate program.

Leavell and Clark's levels of prevention(1) and Maslow's hierarchy of needs systems(2) were selected as being adaptable to a curriculum study and as providing implications for defining the competencies of the professional nurse in occupational health.

Levels of Prevention

Leavell and Clark identified three levels of prevention: primary (health promotion and specific protection), secondary (early diagnosis and prompt treatment and disability limitation), and tertiary (rehabilitation).

Health promotion relates to furthering the general health and well-being of an individual. Specific activities directed to this goal by the health professionals in industry include educating in health habits; promoting adequate nutrition adjusted to the developmental phase of life; fostering healthy personality development; defining and promoting adequate housing, recreation, and suitable working conditions; counseling in marriage, sex education, and genetics; and conducting periodic selective examinations.

Specific protection is concerned with the health professional's activities in controlling disease-producing conditions before the individual is affected. Attention is given as individually needed in such areas as specific immunizations, personal hygiene practices, specific nutrients to bolster diets, and recommendations of job assignments permitting avoidance of allergens and protection from carcinogens. In addition, professional activities are directed toward the broader environmental areas that affect the individual as a member of the group, such as environmental sanitation, occupational disease hazard prevention, and safety practices.

Early diagnosis and prompt treatment as defined by Leavell and Clark are intended

1 to cure and prevent disease processes,

2 to prevent the spread of communicable diseases,

3 to prevent complications and sequelae, and

4 to shorten the period of disability.(1)

The achievement of these goals in early diagnosis requires individual and mass case-finding measures, screening measures, and selective examinations. Prompt treatment of injuries and disease so disclosed must follow.

Disability limitation focuses on preventing or delaying the consequences of a clinically advanced disease process. Two aspects of this level are identified as (1) adequate treatment to arrest the disease process and prevention of further complications and sequelae and (2) provision of facilities to limit disability and avoid preventable death.

Rehabilitation has as its mains objective "to return the affected individual to a useful place in society and make maximum use of his remaining abilities."(1) To accomplish this objective Leavell and Clark identified such activities as (1) the provision of hospital and community facilities for retraining and educating the individual for maximum use of remaining capacities, (2) the education of the public and industry to utilize the rehabilitated for as full employment as possible, (3) selective placement, (4) work therapy in hospitals, and (5) the use of the sheltered workshop technique.

Activities specifically directed toward occupational health for each level were identified and have been used as the basis for assigning the specific competencies of the occupational health nurse. (See Chart I)

Hierarchy of Needs

In his hierarchical theory of human motivation Maslow(2) identified six basic human needs: physiological, safety or protection, love and belongingness, esteem, self-actualization, and aesthetic. For the purposes of this study the aesthetic needs have not been considered since they have yet to be explored more completely.

Maslow's presentation of a general growth-oriented personality theory was evolved through studying self-fulfilled, ergo very healthy, individuals. Since his original formulations, a variety of elaborations and applications have evolved. The most relevant one, for this study, is his highly provocative hypotheses-forwarding book, Eupsychian Management.(3)

Although a number of writers have been concerned with the differences between growth-motivation and deficiency-motivation (Gordon Allport, Eric Fromm, Kurt Goldstein, and Carl Rogers,among others), it is Maslow's theory of self-actualization which outlines the most comprehensive statement of human motives and need levels. This is presented in the form of a system of hierarchical prepotencies from lowest to highest level in human development. Maslow's theoretical orientation is one in which physiological needs are the most potent; however, once these needs are reasonably satisfied, more psychologically-oriented needs (security, safety, etc.) become more pronounced. As safety is consistently gratified, belonging and love-needs as well as esteem needs emerge more strongly as motivating forces. Only after these needs are fulfilled, may self-actualization become manifest.

A sharp distinction is made in this theoretical system between growth and deficiency motivation. Accordingly, the first four levels in the need hierarchy (physiological, safety, love, and esteem) are characterized by some significant deficiency, similar perhaps to a nutritional deficiency. The necessity of satisfying these basic needs produces tension, which is experienced as being unpleasant. A prolonged period of deprivation or lack of gratification leads to physical illness and psychological or emotional disturbances of one kind or another. In the growth-motivated self-actualizing individual, on the other hand, this "need" state is desired rather than rejected and defended against. Satisfaction at these higher levels involves more than a simple tension reduction. Actually, with satisfaction, desire increases rather than decreases. The gratification of growth-motives produces health, whereas satisfaction in deficiency areas serves only to prevent disease or illness.

Actually, in his later writings, Maslow(4) has indicated that the motivational nature of the self-actualization tendency is by no means clear, and he described this state as meta-motivation or unmotivated. In a way, this need for self-actualization is never fully realized, as is possible with deficiency motivation. Instead, individual growth and self-fulfillment is a continuing life-long process. It is developing, ongoing, emerging, and becoming.

The five needs selected are oriented first toward health equilibrium and subsequently towards personal growth and positive health. They relate to the whole individual in a dynamic manner throughout the total life span. For purposes of this project specific common human needs for each broad area have been itemized. (See Chart II)

The Integrated Theoretical Model

The resultant framework that has been developed from the meshing of the two described theories is composed of twenty-five categories, each labeled with one level of prevention and one need. These categories range from "Health Promotion-Physiological" to "Rehabilitation-Self-Actualization." (See Chart III)

Chart I

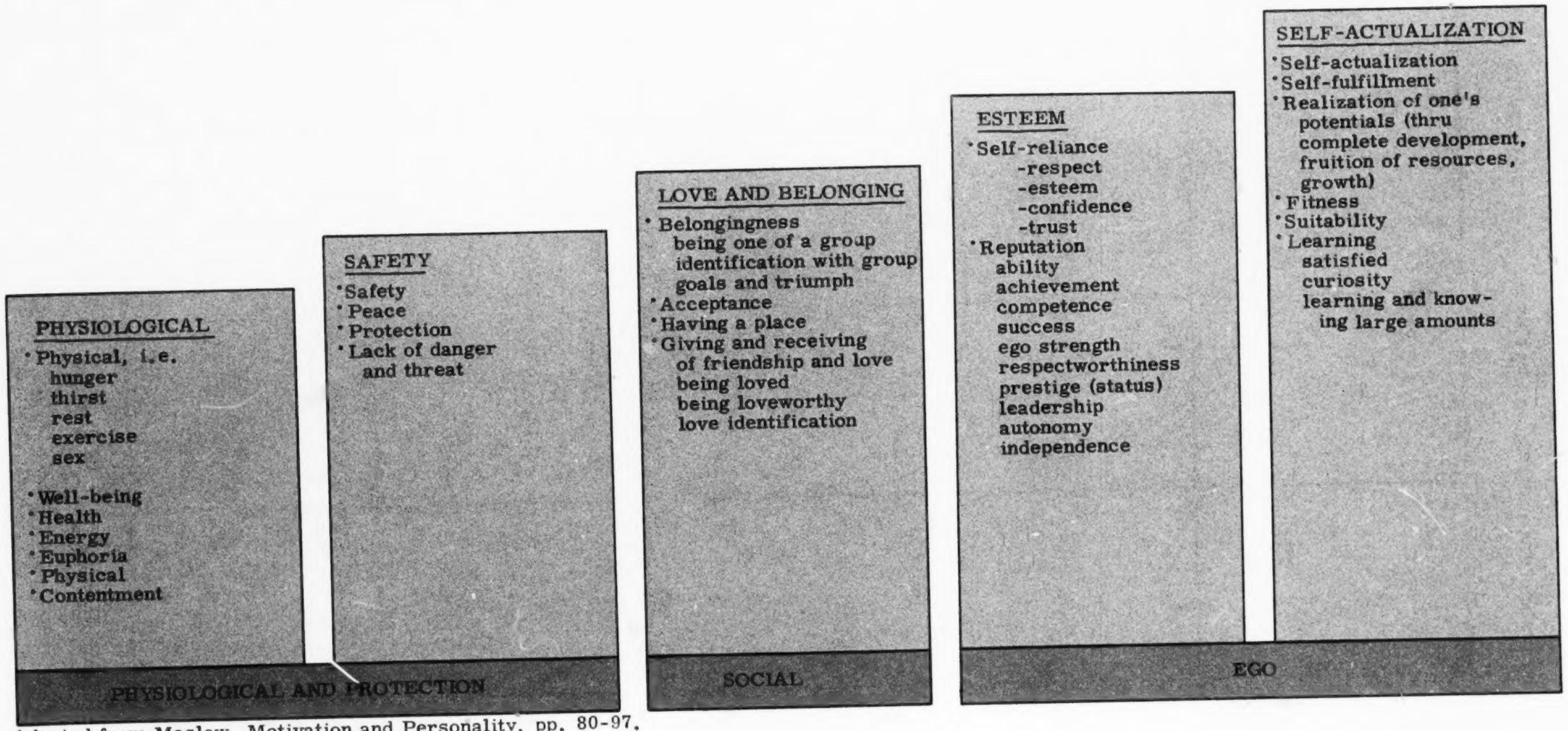
LEVELS OF PREVENTION APPLIED TO OCCUPATIONAL HEALTH*

HEALTH PROMOTION (directed chiefly at host; secondarily at agent)	SPECIFIC PROTECTION (directed at control of environment)	EARLY DIAGNOSIS AND PROMPT TREATMENT (directed at adult population)	DISABILITY LIMITATION	REHABILITATION
1. Fitting job to worker Pre-placement exam including physical and emotional evaluation 2. Health Counseling 3. Mental health aspects Satisfactions Morale Attitude 4. Physiologic machine design Safety features Ease of using 5. Worker hygiene Cleanliness Food-handling and service Rest service	1. Toxic hazards Route: skin, G.I. tract, respiratory system Agent: liquids, solids, mists, vapors, aerosols, fumes, dusts 2. Radiation 3. Accident prevention (physical hazards) 4. Communicable disease control (immunizations) 5. Environmental health promotion Ventilation Lighting Temperature Noise 6. Plant housekeeping and sanitary facilities	1. Occupational disability revealed in first aid records and medical reports 2. Non-occupational diability based on absenteeism for minor illness	1. Pre-placement and periodic exams 2. Referrals 3. Proper handling of cases found with disease or disability 4. Estimation of productive capacity of worker (follow-up and such supervision as needed to limit diability and enable continuing to work until retirement)	1. Psychological trauma 2. Re-evaluation of capabilities and placement accordingly

*Adapted from Leavell and Clark. (See reference 1)

Chart II

Common Human Needs based on Maslow's Hierarchical Motivation Theory


SELF-ACTUALIZATION
· Self-actualization
· Self-fulfillment
· Realization of one's potentials (thru complete development, fruition of resources, growth)
· Fitness
· Suitability
· Learning
satisfied curiosity
learning and knowing large amounts
ESTEEM
· Self-reliance
-respect
-esteem
-confidence
-trust
· Reputation
ability
achievement
competence
success
ego strength
respectworthiness
prestige (status)
leadership
autonomy
independence
LOVE AND BELONGING
· Belongingness
being one of a group
identification with group goals and triumph
· Acceptance
· Having a place
· Giving and receiving of friendship and love
being loved
being loveworthy
love identification
SAFETY
· Safety
· Peace
· Protection
· Lack of danger and threat
PHYSIOLOGICAL
· Physical, i.e.
hunger
thirst
rest
exercise
sex
· Well-being
· Health
· Energy
· Euphoria
· Physical
· Contentment
PHYSIOLOGICAL AND PROTECTION
SOCIAL
EGO

Adapted from Maslow, Motivation and Personality, pp. 80-97.

Chart III

Schema for Framework for Organizing Content of Occupational Health Nursing

LEVELS OF PREVENTION

NEED SYSTEMS	Preventive		Curative		Restorative
	Health Promotion	Specific Protection	Early Diagnosis and Prompt Treatment	Disability Limitation	Rehabilitation
Physiological					
Safety					
Love and Belonging (Social)					
Esteem (Psychological)					
Self-Actualization					

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CHAPTER IV

METHODOLOGY

This chapter presents the methodology used in The University of Tennessee Project as a prototype for a methodology that can be modified to the needs of the particular curriculum being restructured.*

A number of factors influenced the decision to utilize an open and evolving approach to choice of design and methodology. These were: (1) the span of time allotted, (2) the abilities and interests of the project personnel, (3) the consultation services available, (4) the interest of the faculty in supporting a research study, and (5) the apparent need for further development of a systematic approach to a study of the nursing curriculum.

The primary purposes of the project were

1 To identify that knowledge from occupational health nursing which is essential for professional nursing education and practices, and

2 To develop a methodology for identifying given content areas within a course of study. (1)

A secondary purpose was to develop a methodology for determining whether a specific baccalaureate program did include the content necessary to prepare an individual for a beginning position in occupational health nursing. The 1963 ad hoc committee and later the Faculty Advisory Committee had agreed that initial planning should be focused on studying the existing course content in a systematic manner before considering possible changes.

Development of Competencies and Content

Although the functions and responsibilities of the occupational health nurse are well established, the competencies and content needed by the professional nurse to function in occupational health have never been identified. In this project, first priority was given to identifying the competencies and content in a systematic manner.

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*See Appendix B for rationale for The University of Tennessee College of Nursing curriculum.

A role model for the professional nurse in industry was formulated within the proposed theoretical framework. In developing this role, the assumption was made that all professional nurses learned during their academic experiences certain basic concepts, principles, skills, and techniques:

1 Principles and skills of communication;

2 Concepts of human growth and development;

3 Principles from physical and behavioral sciences, i.e., anatomy and physiology, microbiology, biochemistry, physics, sociology, anthropology, psychology;

4 Principles on which technical nursing skills are developed; and the performance of skills of technical nursing, e.g., taking vital signs, administration of medications, hygienic and comfort skills;

5 General medical and nursing techniques applicable to common patho-physiology.

In addition, the following criteria were used in developing the competencies and content necessary for the full functioning of a professional nurse as a worker in occupational health:

1 Competencies to be stated in general terms and to include those which in all probability will be needed for an extended time in the future;

2 Statements of specific skills, functions, and bits of knowledge (some of which can and hopefully will change) to be avoided.

3 Content to be prepared for use by nurse educators at the professional nursing level (the baccalaureate graduate);

4 Competencies to be broad in scope to provide for progressive change;

5 Competencies to be identified or stated in terms of what could be done;

6 Occupational health nursing competencies to be expressed in terms of the nursing process.(2, 3, 4)

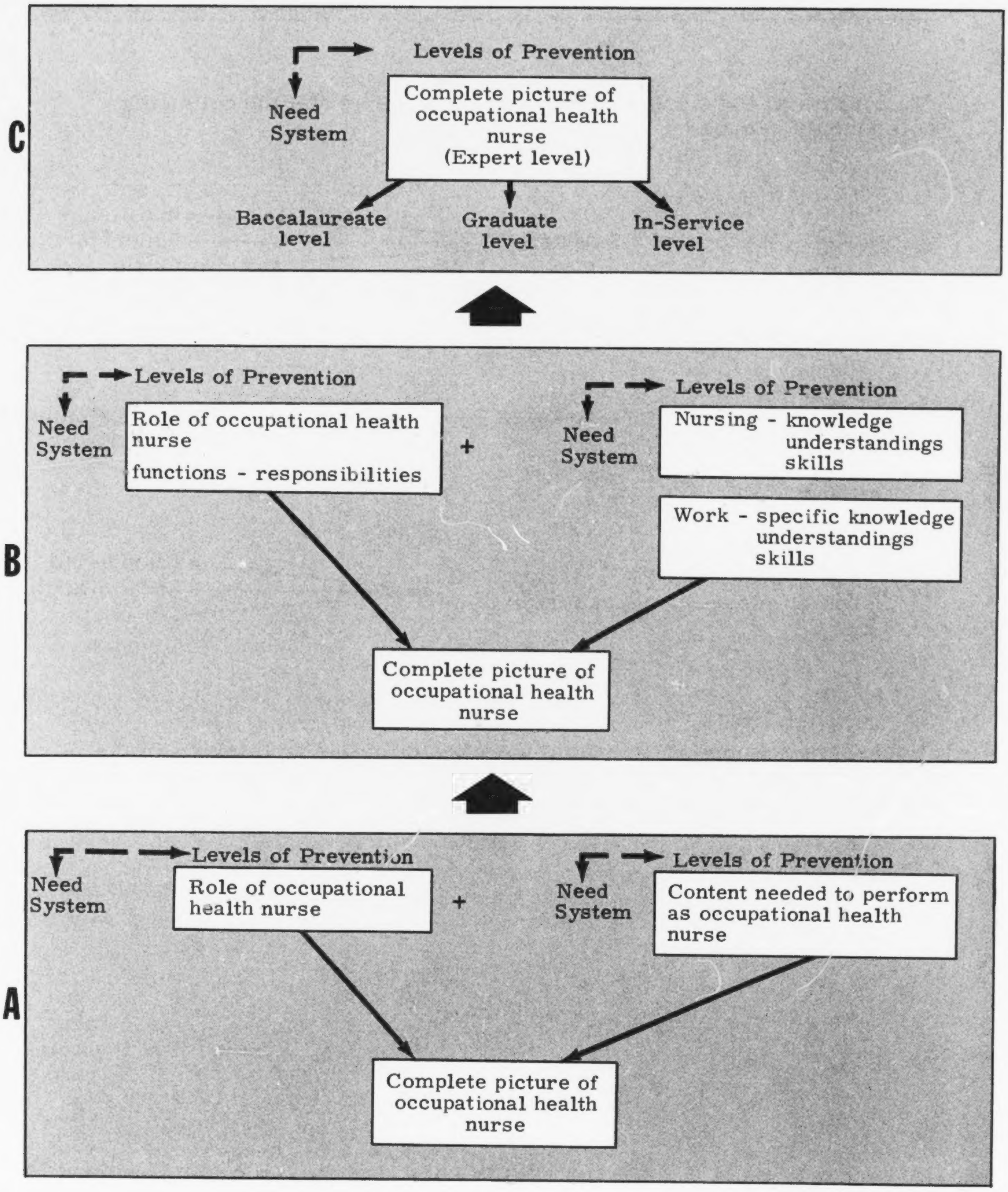
All aspects of the work setting were considered and the following components deduced:

Employee - receiver of
knowledge
understandings
skills

Environment - receiver of
knowledge
understandings
skills

Nurse (as professional) - doer/giver of
(as employee) - receiver of
Knowledge
understandings
skills

Successive schematic diagrams were used to clarify thinking in the development of the competencies and content: These are shown in Section A, B, and C on page 28.


C
Need System
Levels of Prevention
Complete picture of occupational health nurse (Expert level)
Baccalaureate level
Graduate level
In-Service level
B
Need System
Levels of Prevention
Role of occupational health nurse
functions - responsibilities
+
Need System
Levels of Prevention
Nursing - knowledge understandings skills
Work - specific knowledge understandings skills
Complete picture of occupational health nurse
A
Need System
Levels of Prevention
Role of occupational health nurse
+
Need System
Levels of Prevention
Content needed to perform as occupational health nurse
Complete picture of occupational health nurse

This approach was sufficiently broad to permit identification of those concepts equally essential not only to occupational health, but to all nursing. Since the expert level (See Diagram Number 3) had not yet been identified and/or organized, it was necessary to complete this level in order to determine what beginning nurses in occupational health, or professional nurses in general, should know about occupational health nursing.

A detailed account of the steps involved in the development of a projected occupational health nursing role model (competencies and content) follows.

Competencies

Based on the functions and responsibilities of the expert occupational health nurse practitioner as stated by the ANA(5) and the AAIN(6) and on the observations, reflections, and experience of the Principal Investigator, a preliminary listing of the components of nursing in occupational health was made. These components are:

Nursing of employed adults
  Emergency care
  Continuing nursing care
  Health education
  Health counseling
  Health maintenance
  Absentee control
  Community activities
  Environmental relationships

Nursing and the work environment
  Survey and analysis of plant
  Structure of business organization and management
  Industrial relations
  Safety/industrial hygiene
  Disaster planning
  Types of occupational health nursing programs
  Records and reports
  Administration of nursing service
  Development of special programs

Nursing and the welfare of the employee
  Social legislation
  Effect of industrial revolutions
  Employee benefits

The relevance of these functions and responsibilities was evaluated in the light of available documentations.(7, 8, 9, 10, 11, 12)

The first step in the systematic development of the competencies was to fit the identified functions and responsibilities into the theoretical framework. (See Appendix C). After many revisions and subsequent discussion with the project's ad hoc Occupational Health Committee, this approach was discarded since a greater depth and breadth was necessary to define adequately and clearly the role of the professional nurse in each theoretically-derived category.

There evolved a framework of competencies of the professional nurse in occupational health in terms of the nursing process. This process encompasses the steps in comprehensive nursing care; and these steps are applicable to any individual on the health-illness continuum. The competencies, stated in terms of on-the-job behaviors, were cast into the described framework.

Specific nursing actions for each competency were then suggested. (See Appendix D for competencies and suggested nursing actions for the professional nurse in occupational health.) The identified occupational health nursing competencies and suggested nursing actions are obviously not all-inclusive of professional nursing activities.

Content

In identifying content, the Principal Investigator used her experiences, observations, and conversations with health professionals as resources, as well as a broad range of nursing and non-nursing periodicals and publications. Pertinent subject areas researched included health, nursing, medicine, sociology, psychology, government, community organization, personnel administration, social work, environment, ecology, rehabilitation and toxicology.

The academic content needed by the professional nurse (expert practitioner) was identified simultaneously with the nursing competencies needed in occupational health. As the shift from functions and responsibilities to competencies occurred in the development of the project, the content took on the anticipated breadth. It became evident that the earlier formulation of academic content in terms of knowledge, understandings, and abilities required modification. Discussion with the project's ad hoc Occupational Health Committee led to the identification of principles, concepts, and broad areas of content. Each broad area of academic content was elaborated into appropriate component parts. These identified components of each content area, although comprehensive, are not necessarily to be considered complete.

As the competencies in terms of the nursing process emerged, the relevant academic content in occupational health was identified for each competency and was stated at the expert level of professional nursing in occupational health.

In the spring of 1968, the project's ad hoc committee of Nurse Educators and the project personnel delineated the levels of content for three gradations of educational preparation-baccalaureate, graduate, and inservice. Subsequently, the Principal Investigator re-organized the identified academic content into the stated educational levels. The content was then reviewed independently by each member of the committee. The academic content for occupational health nursing thus derived is presented in Chapter VI.

Validation of Competencies and Content

In 1965 the Faculty Advisory Committee rejected the use of a panel of experts as a means of validating the competencies and academic content because of the time and difficulty involved in familiarizing such a panel with the project.

The opinion of the Principal Investigator as nurse specialist with suitable documentation would be considered decisive for questionable areas, particularly in view of the open-end character of the project making it amenable to revision as necessary.

Extent of Mention

The academic content was assigned a number indicating the "extent of mention" that might be spent on a given topic in a class for professional students in nursing. The coding used for "extent of mention" was:

1- less than one sentence (merely mentioned)
2- one to two sentences
3- three to five sentences
4- over five sentences

In actuality, alternative measures of coverage and weights may be substituted.

Subsequently, percentages were used to indicate the degree of coverage suggested for each area of academic content. The following percentages were used: (1) for content that was deemed primarily baccalaureate level and continuing through graduate level - 75 percent baccalaureate and 25 percent graduate; (2) for content that was introduced at the baccalaureate level, but was essentially graduate level - 25 percent baccalaureate and 75 graduate; (3) for content that was introduced to a lesser extent at the baccalaureate level and was primarily graduate level - 10 percent baccalaureate level and 90 percent graduate level.

The suggested percentages (75-25, 25-75) were chosen to fit smoothly with the assigned 1-2-3-4 "extent of mention" points. In order for a lesser extent to be suggested, the 10-90 percentages were used. Consideration was given to suggesting more variations of degree of coverage, such as 50-50, 67-33, or 33-67; but this specificity was not undertaken as its value was questionable.

The content at the inservice level was not assigned a percentage as there appears to be little content in that area and its nature varies with each work setting.

Utilization of the Methodology

Assessment of The University of Tennessee College of Nursing curriculum content itself was determined by the technique of content analysis as developed by Berelson. Content analysis is "a research technique for the objective, systematic, and quantitative description of the manifest content of communications."(13) This method can be used in evaluating content of a communication by comparing it with (1) an a priori standard, (2) another body of content and (3) a non-content source. The standard in each case is developed by a person other than the one presenting the content. For the purposes of this project, evaluation of content by comparing one body of content with another was found to be the most appropriate method.

The most important element in content analysis is the standard utilized in making comparisons. The categories that are developed as the standard, according to Berelson, must be written in an analyzable form appropriate for the content. The occupational health nursing competencies and content that have been stated within the theoretical framework of Leavell and Clark and Maslow can and do constitute the standard of comparison for this project.

A systematic determination of what was presented to students was essential to meet Berelson's second criteria for content analysis. Asking the faculty whether certain principles or selected aspects of occupational health nursing were being presented in their courses did not seem to be the most valid approach. Hence, the Faculty Advisory Committee decided that the best approach was for the Principal Investigator to attend classes and observe selected learning experiences. Due to the limitations of human energy and time only nursing courses were studied. It was assumed that the nursing courses would provide the opportunity for application of the knowledge taught in the related courses. Admittedly, some occupational health nursing content may have been lost, but the experience of the Principal Investigator indicated that the decision was correct.

It was recognized that the data collected represented the course content at a particular point in time and that the project was not designed to evaluate faculty or course content adequacy. There was no discussion with the faculty regarding what content might be added to selected units of study or what content was identified until all data had been gathered and analyzed. Nevertheless, the presence of the Principal Investigator as creating an "experimenter effect"(14, 15, 16, 17) was recognized. Unavoidably, the original design and the limitation of personnel necessitated an unsystematic assessment of these variables. The Principal Investigator attended one course during the summer session of 1965 to test the suitability of the data collection techniques, and this experience indicated the adequacy of the approach.

At the beginning of each academic year the Principal Investigator wrote the appropriate faculty chairman explaining how the data would be collected and offered to meet with the faculty for that particular year to answer any questions. The Principal Investigator attended meetings of each year's faculty in order to be kept informed of plans and scheduling for the courses. She declined participation in the testing and evaluation aspects of the students' progress and the curriculum planning.

The basic method of data collection for content analysis was auditing the nursing classes and some clinical conferences of one class of students (Class of 1968) for the three-year period of the program within the College of Nursing. (See Appendix E for description of courses offered.) The courses audited over the three-year period were:

Sophomore Year
- Nursing as a Social Force I
- Nursing of Children and Adults I and II

Junior Year
- Nursing of Children and Adults III, IV, V

Senior Year
- Nursing of Children and Adults VI, VII, VIII
- Nursing as a Social Force III
- Preventive Medicine 2 N

The related required courses taught within the Medical Units but not audited included: anatomy and physiology, biochemistry, physics, microbiology, anthropology, human growth and development, scientific method in nursing, biostatistics, nutrition, and pharmacology.

For nursing classes not attended the Principal Investigator obtained tapes of the classes or the notes from one student of high caliber. About ninety percent of the target classes were audited by the Principal Investigator. All handouts, the syllabi, films, and other audio-visual aids were noted and analyzed for content.

The Principal Investigator sat with the students in the classroom, but did not participate in the teaching-learning process except when invited by the instructor. Usually the questions directed to the Principal Investigator were related to nursing, public health, or health care in general, rather than to occupational health nursing.

Observations in the clinical area were started in the sophomore year but were discontinued after a few weeks. The reasons for omitting these observations were 1) an increase in student anxiety caused by the presence of an additional observer, 2) the impossibility of observation of more than a very few student learning experiences, and 3) the difficulty of being present when appropriate content could be observed or audited. It is acknowledged that some content may have been lost.

Class and clinical conference content material relevant to the theoretical framework was recorded in written form in terms of broad categories, but details were noted when specific application to occupational health nursing was evident.

The data were organized by courses and academic quarter, rather than by speciality area in nursing, according to the organization of the curriculum. At the completion of each course, the recorded content from classes was coded on index cards (content information cards) under the following headings: content data, course number, week, method of instruction, and "extent of mention." Each item of content was noted on a separate card.

"Extent of mention" indicates the time spent on a given topic, but does not indicate relevance, accuracy, and depth of the coverage. Despite this limitation, the coding does serve as an index of coverage. Over 900 content information cards were collected. A typical sample follows:

CONTENT DATA:

Team approach to health care
Concept of a team

COURSE: Nursing as a Social Force EXTENT OF MENTION #4

WEEK: 8

METHOD OF INSTRUCTION: Lecture

Summary

The following prototype outline of the methodology can be followed in making a study similar to that described in this manual:

1 Faculty decision on the total or partial review of the curriculum;

2 Determination of standard, including "extent of mention" or other alternative technique;

3 Determination of data collection techniques;

4 Collection of data;

5 Analysis of data;

6 Comparison of data with the standard;

7 Evaluation and recommendations.

In reality Step 2 (Determination of standard) is the crux of any curriculum study. In the methodology presented in this manual, a standard has been determined that is a theoretical framework composed of two recognized theories (Levels of Prevention and Hierarchy of Needs). This standard can be utilized by nurse educators to delineate expected behaviors of the nurse in terms of the nursing process and from the behaviors to evolve the content that is considered necessary for a nurse to know in order to attain the competency.

The methodology presented in Chapter VI provides a theoretical framework for such organization based on: Prevention: the normal, well individual (See first ten categories: Health Promotion-Physiologic through Specific Protection-Self Actualization); Therapy: the ill or the ill but active individual (See the next ten categories: Early Detection and Prompt Treatment-Physiologic through Disability Limitation-Self Actualization; Rehabilitation: the recuperating individual in need of rehabilitation to achieve maximum potential (See the next five categories: Rehabilitation-Physiologic through Rehabilitation-Self Actualization).

The use of Occupational Health Nursing illustrates how the methodology can be applied and how the content can serve as an assessment tool for nurse educators in determining what academic content is, or is not, or might be included for the particular area of concern; e.g., a course, a unit of study, or the total curriculum.

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CHAPTER V

DATA ANALYSIS

The content data gathered in The University of Tennessee project from class presentations were coded to permit two methods of curriculum evaluation: qualitative (an overview) and quantitative. Although all the observed data are not stated in this manual, the manner of assessment and some general findings are discussed.

Methods of Analysis

The first method of analysis made possible a comparison of the data with the standard, i.e., the academic content suggested for the baccalaureate level of education for nursing practice based on the discussions of the project's ad hoc committee of nurse educators. These nurse educators had agreed that a to-be-determined proportion of the broad areas of content be assigned to various educational levels of preparation.

The second method of analysis yielded a quantitative comparison of the assigned with the observed "extent of mention" of the suggested content. The Principal Investigator arbitrarily assigned "extent of mention" points (1-4) to each of the components within each of the 25 categories of the theoretical framework. These "extent of mention" points served as criteria for all subsequent quantitative assessments of the suggested and observed content. In utilizing this methodology, any manageable number of points could be assigned provided that the same criteria are used throughout.

The content data (content information cards) were placed in only the one most appropriate of the 25 categories. The data were then further classified into the broad content areas within each of the 25 categories. Table I consists of the column headings only and is presented to illustrate the classification technique.

TABLE I
SCHEMA FOR CODING DATA

Category	Competency	Assigned Academic Content	Extent of Mention	Academic Content Observed	Extent of Mention	Course	Academic Content Covered by a Course not attended by Principal Investigator

The last column in Table I was allocated for the identification of academic content assumed covered by a course that was not attended by the Principal Investigator.

In quantitatively comparing the "extent of mention" points in the criteria with those in the collected data, each broad area of content within each of the 25 categories was scored separately. For each individual component the "extent of mention" points assigned in each broad content area were totaled. The same procedure was followed for "extent of mention" points in the observed data. All broad content area scores were totaled to yield scores for each of the 25 categories. However, when the observed "extent of mention" exceeded the assigned "extent of mention" only the maximal points assigned in the criteria were used. For example, under comprehensive health care (Health Promotion-Physiological) "characteristics" was discussed in two courses with a total of eight "extent of mention" points for the observed data (See Chapter VI). In preparing the data for the quantitative analysis, a score of only four points was allowable, as this was the number assigned in the criterion.*

To accomplish the quantitative assessment, a schema (Table II) was developed to compare the assigned "extent of mention" total points for the professional nurse level (column 1), the assigned baccalaureate level (column 3) and the observed data (column 4) for each broad content area in the 25 categories.

The assigned percentage of coverage for the baccalaureate level is indicated in column 2, and the calculated percentages of coverage are indicated in column 5 and 6. A summary by category of the totals and percents in Table II may be found in Table III.

The data concerning the adequacy of coverage $\left(\frac{\text{observed "extent of mention"}}{\text{assigned "extent of mention"}}\right)$ for the studied curriculum are not given. Specifically, all materials under columns 5 - 8 in Table I may not be found in Chapter VI. data for columns 4 - 6 in Table II are also deleted. The points and percentages for lines 3 and 4 are similarly ommitted in Table III. This omitted material is not necessary to an understanding of the analysis process.

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*(In retrospect, it is felt that a broader range of "extent of mention" points, such as 1-6, would have yielded more accurate information and finer discriminations.)

TABLE II

QUANTITATIVE ASSESSMENT OF THE OCCUPATIONAL HEALTH ACADEMIC CONTENT FOR ______ (school)

A COMPARISON OF THE ASSIGNED WITH THE OBSERVED EXTENT OF MENTION OF ACADEMIC CONTENT

CATEGORY	COMPETENCY	SUGGESTED ACADEMIC CONTENT FOR BACCALAUREATE LEVEL OF NURSING EDUCATION	1	2	3	4	5	6

Legend:

Column 1 - The assigned "Extent of Mention" for the Professional Nurse in Occupational Health (points).
Column 2 - The suggested Academic Content for Baccalaureate Level (per cent).
Column 3 - The assigned "Extent of Mention" for Baccalaureate Level $\left(\frac{\text{Column I}}{\text{Column II}}\right)$ (points).

Column 4 - The Observed "Extent of Mention" (points).
Column 5 - The Observed "Extent of Mention" (per cent).
Column 6 - Difference between assigned and Observed "Extent of Mention" (in per cent)

TABLE III
SUMMARY OF THE QUANTITATIVE CRITERIA FOR ACADEMIC CONTENT

NEED SYSTEM	LEVEL OF PREVENTION				
	Preventive		Curative		Restorative
	Health Promotion	Specific Protection	Early Diagnosis & Prompt Treatment	Diability Limitation	Rehabilitation
Physiological	1) 405 2) 266 3) 4) 5) 66%	1) 58 2) 5 3) 4) 5) 8%	1) 101 2) 74 3) 4) 5) 73%	1) 98 2) 74 3) 4) 5) 75%	1) 71 2) 48 3) 4) 5) 68%
Safety	1) 150 2) 76 3) 4) 5) 51%	1) 107 2) 33 3) 4) 5) 31%	1) 43 2) 10 3) 4) 5) 23%	1) 49 2) 28 3) 4) 5) 57%	1) 32 2) 16 3) 4) 5) 50%
Love and Belonging (Social)	1) 279 2) 163 3) 4) 5) 58%	1) 99 2) 28 3) 4) 5) 28%	1) 53 2) 26 3) 4) 5) 49%	1) 68 2) 39 3) 4) 5) 57%	1) 92 2) 29 3) 4) 5) 32%
Esteem (Psychological)	1) 122 2) 77 3) 4) 5) 63%	1) 92 2) 20 3) 4) 5) 28%	1) 82 2) 50 3) 4) 5) 61%	1) 147 2) 108 3) 4) 5) 73%	1) 48 2) 30 3) 4) 5) 62%
Self-Actualization	1) 212 2) 88 3) 4) 5) 42%	1) 72 2) 12 3) 4) 5) 17%	1) 20 2) 15 3) 4) 5) 75%	1) 67 2) 46 3) 4) 5) 69%	1) 16 2) 8 3) 4) 5) 50%

Note: See page 44 for legend.

Legend for Table III

1 Assigned "Mention" for Professional Nurse in Occupational Health

2 Assigned "Mention" for Baccalaureate Educational Level

3 Observed "Mention" at Baccalaureate School of Nursing

4 Percent of $\left(\frac{\text{Observed "Mention" Content}}{\text{Assigned "Mention" Content}}\right)$

5 Approximate Percent of Recommended Undergraduate Coverage of Total Knowledge Exposure for Category.

Qualitative Comparison

As the observed data were placed under the appropriate broad area of content, the discrepancies between the suggested and observed academic content relating to professional nursing in occupational health became obvious. If a subject area was not included in the data, a gap in the content area recording could be observed; if a subject area was extensively covered, more than adequate "extent of mention" points could be noted.

This assessment revealed adequate, or more or less than adequate, coverage of the suggested content in each of the 25 categories. It also revealed areas of strength or weakness in the general areas of prevention, cure, or restoration. The degree of health-orientation or a pathology-orientation in various aspects of the curriculum was readily apparent. The assessment was also useful in substantiating whether the full scope of the needs hierarchy was adequately presented to the students in the class setting.

Quantitative Comparison

The quantitative comparison was used to compare the observed content with the suggested baccalaureate level content in terms of assigned "extent of mention." The academic content "extent of mention" as listed in Chapter VI and in Table III was used. For example, category "Health Promotion-Physiological" calls for a total of 405 points as the assigned "extent of mention" for the professional nurse in occupational health and 266 points as the assigned "extent of mention" for the baccalaureate level.

By comparing the assigned with the observed "extent of mention" the degree of coverage was revealed in the broad content areas. By a careful review of the discrepancies between assigned and observed "extent of mention" in the category, a general statement could be made on the temporality-orientation of content covered, such as whether the content was (1) traditional in nature, (2) focused on the present day practice of nursing, or (3) directed toward the new philosophy and developments in nursing and in health services.

Similar analysis of each category can indicate the change in curriculum content areas that could be made if the assigned "extent of mention" were used as a criterion for evaluation.

Through this method it is possible to assess and to recommend changes for the inclusion of the content needed for professional nursing in occupational health. A similar procedure could be used in curriculum analysis by other nursing specialities.

CHAPTER VI

DELINEATION OF OCCUPATIONAL HEALTH CONTENT FOR PROFESSIONAL NURSING

The listing of occupational health course content considered essential for professional nursing is presented in this chapter. It is this course content that served as the standard used with the methodology discussed in Chapters IV and V.

The column headings are explained as follows:

Framework Category: See Chapter III for explanation of category derivation. (Leavell and Clark's levels of prevention and Maslow's hierarchy of needs)

Competencies: These are the identified competencies of the professional nurse in the occupational health setting. See Chapter IV for a discussion of competencies.

Course Content: In this column is delineated the content needed to perform the competencies of the professional nurse in occupational health. The content is listed in broad content areas (e.g., Health) with detailed elaboration (e.g. Definition, Responsibility, etc.).

"Extent of Mention" Points: See Chapters IV and V for discussion of derivation and utilization of "extent of mention" points.

Supplementary In-Service Content: This content is believed more directly related, both in source and in utilization, to the occupational site and is considered supplemental to the academic content presented in institutions of learning.

It is emphasized that the "extent of mention" points were assigned arbitrarily by the Principal Investigator of the project for use in testing the methodology by assessing the selected curriculum (The University of Tennessee School of Nursing). It is assumed that extent of mention points would be assigned at the discretion of the individual utilizing this methodology for developing or evaluating a curriculum.

Delineation of Occupational Health Content for Professional Nursing Competency for each of the 25 squares on the grid follows on pages 50 through 73 and relate to the grid as shown on Chart I.

Delineation of Occupational Health Content

Suggested academic content for each educational level is listed under the appropriate competency. Many concepts and broad content areas were found to weave throughout several framework categories. This content is starred (★) and stated only once.

NEED SYSTEMS

	Preventive		Curative		Restorative
	Health Promotion	Specific Protection	Early Diagnosis & Prompt Treatment	Disability Limitation	Rehabilitation
Physiological	see pages 50 & 51	see page 60	see page 64	see page 67	see page 71
Safety	see page 53	see page 61	see page 65	see page 68	see page 71
Love & Belonging (Social)	see pages 54 & 55	see page 62	see page 65	see page 68	see page 72
Esteem (Psychological)	see page 57	see page 63	see page 66	see page 69	see page 73
Self-Actualization	see pages 58 & 59	see page 63	see page 66	see page 70	see page 73

HEALTH PROMOTION - Physiological

COMPETENCY	COUR	Extent of Mention			SUPPLEMENTARY IN-SERVICE CONTENT
		Total	Bac.	Grad.	
Assesses physical health needs of employees	Health	25	19	6	
	Definition	2			
	Responsibility	3			
	Contributing factors	4			
	Indices of health status	4			
	Philosophy of health & medical care	4			
	Health-illness-death continuum	4			
	Dimensions	4			
	Levels of wellness	18	26	6	
	Definition	2			
	Components	4			
	Dimensions of wellness	4			
	Contributing factors	4			
	Relation of aging process (in life cycle)	4			
	Comprehensive health care	35	26	9	Role of occupational health program in local area
	Definition	2			
	Characteristics	4			
	Dimensions	4			
	Responsibilities	3			
	Influences on provision of care	4			
	Role of each discipline				
	medicine	2			
	nursing	4			
	dentistry	2			
	pharmacy	2			
	social sciences	2			
	physical sciences	2			
	government	2			
	Role of consumer	2			
	Philosophy of prevention of disease and promotion of health	20	15	5	
	Basic philosophy	4			
	Objectives	4			
	Theory of prevention	4			
	Methods of use	4			
	Target groups	4			
	Use of health statistics	16	12	4	
	Vital data	4			
	Incidence of disease	4			
	Identification of health strengths and weaknesses	4			
	Rates	4			
	Human ecology	19	14	5	
	Definition	2			
	Dimensions	4			
	Relationship to general ecology	3			
	Relationship to health	3			
	Relationship to illness	3			
	Component of health and medical services	4			
	Assessment of an individual	16	12	4	
	*Basic physiologic needs	4			
	Physical characteristic for age grouping (adolescence to senescence)	4			
	Normative standards	4			
	Factors in assessment	4			
	Groups of employees with special health needs, e.g.,	28	21	7	Special health needs of employee in the organization
	Woman employee				
	physiological limitations	4			
	biological considerations, such as pregnancy	4			
	Older employee				
	physiological factors in aging employee from culturally-different group in society	4			
	health needs	4			
	attitude toward health and medical care	4			
	attitude toward health needs	4			
	cultural influences	4			

HEALTH PROMOTION - Physiological

Collaborates in planning for health promotion and maintenance in work setting	★Communication skills	32	24	8	
	Formal and informal				
	definition	4			
	patterns	4			
	influencing factors	4			
	principles	4			
	barriers	4			
	characteristics	4			
	forms of communication	4			
	rumor	4			
	Development of a program for a health service	36	9	27	
	Identification of need	4			
	Planning approaches and methods	4			
	Implementation	4			
	Evaluation	4			
	Overcoming resistance	4			
	Selection of personnel	4			
	Facilities	4			
	Development of philosophy and objectives	4			
	Training				
	★Collaborative role of nursing on health teams	21	16	5	In-plant health team relationship with specific health services
	Team approach to health care	4			
	Types of teams	3			
	Members of teams	2			
	Responsibility of team members	4			
	Relationships of team members	4			
	Team nursing	4			
Intervenes to promote health maintenance	Health evaluation program	36	9	27	Technical skills for screening tests
	Philosophy and objectives	4			
	Legal aspects for health team	4			
	Value of program	4			
	Components of program	4			
	Methods of health evaluation				
	health interview	4			
	physical examination	4			
	screening tests-mass/multiphasic	4			
	Communication of findings	4			
	Follow-up of individuals	4			
	Interviewing and counseling	24	28	6	
	Purposes	4			
	Principles	4			
	Techniques	4			
	Developing trust relationship	4			
	Barriers to establishing effective relationship	4			
	Influencing factors on nurse individual	4			
	★Health instruction	36	27	9	
	Teaching-learning process				
	identification of teaching opportunities	4			
	identification of needs	4			
	identification of personal readiness and vulnerability	4			
	methods of health instruction				
	group	4			
	individual	4			
	Influences on ability to learn and to teach	4			
	Sources and evaluation of health education materials	4			
	Evaluating effectiveness of teaching	4			
	Positive health habits	20	15	5	
	Periodic health and dental evaluations	4			
	Personal hygiene	4			
	Nutrition	4			
	Rest-recreation-work balance	4			
	Reproductive process	4			
	★Records and reports	23	17	6	Records and reports for for organization
	Principles	4			
	Types	3			
	Uses	4			
	Legal aspects	4			
	Terminology used	4			
	Information recorded	4			
	TOTALS	405	266	139	

COMPETENCY	COURSE CONTENT	Extent of Mention Total	Extent of Mention Bac.	Extent of Mention Grad.	SUPPLEMENTARY IN-SERVICE CONTENT
Collaborates in assessing safety needs of employee and family	*Basic safety needs of an individual	15	12	3	
	Protection	3			
	Safety	4			
	Identification of individual and family needs	4			
	Nursing responsibility	4			
	Injury control	40	30	10	Injury control program in organization
	Philosophy and objectives	4			
	Attitudinal influences				
	individual	4			
	family	4			
	groups	4			
	community	4			
	Factors influencing accidents	4			
	Epidemiologic approach	4			
	Programs for injury control				
	home	4			
	community	4			
	work	4			
	Safety statistics	15	4	11	Accident and injury rates for organization
	National Safety Council and allied agencies	3			
	Accident and injury rates				
	occupational	4			
	non-occupational	4			
	Use of data in safety programs and education	4			
	Accident susceptibility	12	3	9	
	Theories	4			
	Research findings	4			
	Identification of personal characteristics	4			
Intervenes to promote Security of employee and family from economic stress due to non-occupational illness and injury	Economic factors in health care	20	15	5	
	Cost of care	4			
	Utilization of services by socio-economic classes	4			
	Influences on cost	4			
	Trends in health care due to economic factors	4			
	Socialization of health care	4			
	Prepaid health care	28	7	21	Prepaid health care plans in organization Role of nurse in insurance program
	Purpose and need	3			
	Development of plans	4			
	Types of plans and coverage	4			
	Trends in prepaid health care	4			
	Effect of legislation	3			
	Influence of unions	4			
	Groups not covered	3			
	Disorders not covered	3			
	Social welfare plans	20	5	15	
	Development, benefits, trends				
	Medicare	4			
	Medicaid	4			
	Social Security	4			
	Unemployment Insurance	4			
	Impact of plans on development of health care agencies and programs	4			
	TOTAL	150	76	74	

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COMPETENCY	COURSE CONTENT	Extent of Mention			SUPPLEMENTARY IN-SERVICE CONTENT
		Total	Bac.	Grad.	
Assesses social health needs of employee and family	★Influences on individual and group behavior	20	15	5	Groups represented in organization
	Social	4			
	Cultural	4			
	Ethnic	4			
	Economic	4			
	Religious	4			
	Employee as an individual	12	9	3	
	★Basic social needs of an individual	4			
	Employee as a member of a family and community	4			
	Influences of employee on work setting, co-worker, work group	4			
	Work	21	16	5	The organization and type of work to meet its objectives
	Meaning of work	4			
	Dignity and value of work	3			
	Functions of work	3			
	Cultural values and beliefs regarding work	4			
	Peer relationships	4			
	Creating positive attitudes toward all work	3			
	★Family	36	27	9	Influences of family on organization
	Family structure and relationships	4			
	Role in society	4			
	Roles of members	4			
	Influences on family and family members	4			
	Impact of contemporary society on family structure	4			
	Influences of family relationship on employee, work setting, community	4			
	Assessment of family needs	4			
	Family-centered care	4			
	Role of family in patient care	4			
	Identification of health needs and health interests of groups	18	5	13	Identified health needs and interests
	Philosophy	2			
	Methods	4			
	Sources and use of data	4			
	Target groups	4			
	Health problems of nation, state, community	4			
	★Group process and dynamics	20	5	15	Use of groups in organization
	Groups in general	4			
	Types of groups	4			
	Roles of group members	4			
	Use of groups	4			
	Group behavior, e.g., influences, attitudes, reactions	4			
	Socio-economic effects of industrial relationships	24	6	18	Relationships within organization Union contract
	Historical development and organization of union	4			
	Union-management relationships	4			
	Impact of unionization on nation, community, work setting, individuals, family	4			
	Influence of labor disputes	4			
	Influences on labor disputes	4			
	Role of nurse in industrial relationships	4			
	Social aspects of management and supervision	20	5	15	
	Philosophies of supervision	4			
	Principles of supervision	4			
	Principles of administration	4			
	Theory of management	4			
	Management expectations of employee	4			
	Impact of increased leisure time	16	12	4	
	Trends	4			
	Attitudes of employees and families	4			
	Preparation for use	4			
	Hazards	4			

	Groups of employees with special health needs, e.g.,	24	18	6	Special health needs of employees of organization
	Woman employee				
	socio-economic factors of working woman for individual, family, labor force	4			
	Older employee				
	social aspects of aging	4			
	Younger employee				
	social pressures	4			
	development of work habits	4			
	Employee from culturally different group in society				
	relationships	4			
	socio-cultural-economic factors	4			
	Retirement programs	12	3	9	Retirement program for organization
	Benefits	4			
	Trends	4			
	Social factors of retirement for individual, family, community	4			
Collaborates in planning and interveneing to promote social adaptation of employee and family	Population as healthy, productive citizens	16	12	4	
	Philosophy	4			
	Development of professional relationship with healthy productive individuals				
	approaches	4			
	modification of therapeutic relationship	4			
	Professional socialization	4			
Collaborates in planning health maintenance activities for total community health programs	Community structure and organization	20	15	5	
	Local	4			
	Regional	4			
	State	4			
	Federal	4			
	World	4			
	*Community health facilities	20	15	5	Community health facilities in local area
	Historical development	4			
	Official and voluntary agencies	4			
	Nurse-agency relationship	4			
	Role of nurse in community health	4			
	Comprehensive health planning	4			
	TOTALS	279	163	116	

COMPETENCY	COURSE CONTENT	Extent of Mention Total	 Bac.	 Grad.	SUPPLEMENTARY IN-SERVICE CONTENT
Assesses emotional needs of employees	*Basic emotional needs of an individual Emotions Emotional needs of individuals and groups	8 4 4	6	2	
	*Human growth and development Developmental tasks from birth to senesence Research in growth and development	8 4 4	6	2	
	Satisfaction and morale Definitions Assessment Barriers, promoters, sources	11 3 4 4	3	8	
	Individual and group reaction to normal stress Behavior - overt and covert	4 4	3	1	
	Limit-setting Definition Need Methods	11 3 4 4	8	3	
	Interpersonal concepts, e.g., avoidance, conflict, competition, compromise, resistance, etc.	4	3	1	
	Perception Interpersonal Personality Social	12 4 4 4	9	3	
	Groups of employees with special health needs, i.e., woman employee psychological aspects of work for individual, family, labor force, male-female relationships biological considerations, e.g., dysmenorrhea, pregnancy, menopause older employee psychological aspects of aging younger employee development of attitudes toward work psychological aspects of age group emotional role within family employee from culturally-different group in society attitudes toward self, family, work setting, community factors in group acceptance	32 4 4 4 4 4 4 4 4	27	5	Special health needs of employees in organization
	Retirement programs Emotional factors in retirement for individual, family, work setting	4 4	1	3	Retirement program for organization
Collaborates in planning and intervening to promote emotional health	*Process of change Steps in effecting change Role of change-agent Coping with resistance to change	12 4 4 4	3	9	
	*Motivation Theories of motivation Motivating change in habits and behavior	8 4 4	2	6	
	*Characteristics of an emotionally healthy environment Freedom from excessive stress Interpersonal relationships	8 4 4	6	2	
	TOTALS	122	77	45	

COMPETENCY	COURSE CONTENT	Extent of Mention Total	Extent of Mention Bac.	Extent of Mention Grad.	SUPPLEMENTARY IN-SERVICE CONTENT
Assesses growth needs and health potential of employees	*Basic self-actualization and higher needs of an individual	20	15	5	
	Fulfillment	4			
	Methods for full functioning	4			
	Promoting full functioning	4			
	Higher basic needs	4			
	Opportunities available	4			
	*Readiness	8	6	2	
	Theories of personal readiness and vulnerability	4			
	Recognition	4			
Collaborates in planning and intervening to promote growth	*Self-responsibility for all behavior, health and health care	8	6	2	
	Philosophy	4			
	Promotion	4			
	Nurse as a role model	16	12	4	
	Role mode	4			
	Methods of learning from role model	4			
	Role model in leadership	4			
	Limitations	4			
Participates in and conducts systematic studies relating to health of the employees, occupational health and nursing.	Research methodology†	20	2	18	Role of nurse in ongoing research projects.
	Standard research design	4			
	Epidemiologic method (1)	4			
	Problem solving (1)	4			
	Statistical methods, including bio-statistics				
	basic statistical procedure	4			
	interpretation of findings	4			
	Use of research findings	12	3	9	
	Application of findings	4			
	Replication of studies	4			
	Recommendations and findings as a source of identificable problem	4			
	Identification of a problem for research in employee health care	12	0	12	
	Methods	4			
	Sources	4			
	Types of problem area	4			
	Employee population as a source of data	8	0	8	
	Sources of data	4			
	Approaches	4			
Collaborates in evaluating the total health promotion and evaluation program	Organization of occupational health program†	24	3	21	Occupational health program in organization
	Service provided (1)	4			
	Team members (1)	4			
	Types of occupational health programs (1)	4			
	Historical development	4			
	Facilities and equipment	4			
	Health team approach				
	responsibilities of members	4			
	Occupational health nursing program	20	5	15	Occupational health nursing program in organization
	Administrative responsibilities	4			
	Development of job description	4			
	Use of nursing manual	4			
	Use of consultation services	4			
	Service as a student learning experience	4			

HEALTH PROMOTION
- Self actualization (continued)

Philosophy, objectives and standards of a health promotion and health evaluation program	24	6	18	
Development	4			
Components	4			
Use and implementation	4			
★Criteria for evaluation	4			
Establishing group priorities				
assessing needs	4			
methods of setting priorities	4			
★Philosophy of professional nursing and nursing practice	24	18	6	
Levels of educational preparation and practice	4			
Standards of practice	4			
Historical development	4			
Professional organizations	4			
Independent and dependent nursing functions	4			
Nursing process	4			
Ambulatory services as component of health care program	16	12	4	
Philosophy and objectives	4			
Methods for provision	4			
Trends	4			
Role of nursing	4			
TOTALS	212	88	124	

[†] Figures in parenthesis apply to baccalaureate level

SPECIFIC PROTECTION - Physiological

COMPETENCY	COURSE CONTENT	Extent of Mention			SUPPLEMENTARY IN-SERVICE CONTENT
		Total	Bac.	Grad.	
[illegible]	Industrial hygiene and toxicology Principles of environmental hygiene, e.g., temperature, illumination, ventilation, noise, odors	4 4	1	3	Environmental hygiene program in organization
	Human physiology in work setting Muscular activity Heat stress Physical stress	12 4 4 4	3	9	
	Processes used in production or service by industry Methods of developing understanding of processes Effects of processes on health - physical, emotional, social Effects of changing processes on health	12 4 4 4	1	11	Processes used in production
	Threshold Limit Value Definition Use Validity Screening tests for protection	14 2 4 4 4	0	14	Screening test for program in organization
	Characteristics of work environment Physical layout of plant Geographic and climatic aspects Systems of manufacturing	12 4 4 4	0	12	Characteristics of plant facilities
	Impact of environmental dimensions of health on development of health program	4	0	4	
	TOTALS	58	5	53	

COMPETENCY	COURSE CONTENT	Extent of Mention			SUPPLEMENTARY IN-SERVICE CONTENT
		Total	Bac.	Grad.	
Collaborates in providing a safe environment	Characteristics of a safe living environment	4	3	1	Hazards to health in organization
	Freedom from hazards	4			
	Potential physical, chemical, micro-biological and energy hazards	6	4	12	
	Identification	4			
	Preventive aspects	4			
	Emergency care aspects	4			
	Physiological reactions	4			
	Environmental cleanliness and sanitation	12	3	9	Policies for organization
	Legislation regarding work environment	4			
	Sanitary codes	4			
	Company policies	4			
	Organization of industrial safety department	23	2	21	Safety program for organization
	Team approach	3			
	Safety program	4			
	Security program	4			
	Safety education program	4			
	Work, home and community safety protective equipment				
	philosophy for use	4			
	attitudes toward use	4			
	Effects of long-distance travel on health	8	2	6	
	Diurnal cycles	4			
	Behavior - overt and covert	4			
Collaborates in providing programs to control communicable disease in work setting	Detection and follow-up of communicable disease conditions	12	9	3	
	Respiratory infections	4			
	Gastro-intestinal infections	4			
	Venereal disease	4			
	Immunizations and other disease control measures	8	6	2	Immunization program for organization
	Specific need for immunizations	4			
	Coordination with community health program	4			
Collaborates in planning control programs for community health programs	Disaster planning for community and work setting	12	3	9	Disaster plan for organization
	Diasters	4			
	Disaster relief programs	4			
	Effects of planning and actual event on individuals	4			
	Environmental health problems and programs relating to work setting	12	1	11	Environmental health programs for organization
	Air/Water pollution	4			
	Radiation	4			
	Natural and man-made disasters	4			
	TOTALS	107	33	74	

COMPETENCY	COURSE CONTENT	Extent of Mention Total	Bac.	Grad.	SUPPLEMENTARY IN-SERVICE CONTENT
Collaborates in assessing influences of social aspects of work environment on health	Social effects of change in industry	28	21	7	
	Influence of Industrial Revolution and subsequent "ages" on				
	Work environment	4			
	Family life	4			
	Health and accidents	4			
	Social legislation	4			
	Economic aspects of living	4			
	Mass production	4			
	Automation	4			
	Social characteristics of a work environment†	71	7	64	
	Lines of communication (1)	4			
	Competitive enterprise (1)	3			
	Classification of workers (1)	4			
	Personnel policies (1)	4			
	Interdepartmental relationships (1)	4			
	Job descriptions and analyses (1)	4			
	Work scheduling and shift work (1)	4			
	Varieties of industries	4			
	Employee groupings	4			
	Organization of a company	4			
	Economic status of a company	4			
	Types of company ownership	4			
	Sources of employees	4			
	Employment standards	4			
	Informal organization	4			
	System of placement	4			
	Legal aspects of business enterprise	4			
	Social structure of work setting	4			
	TOTALS	99	28	71	

†Note Numbers in parenthesis apply to baccalaureate level

SPECIFIC PROTECTION - Psychological

COMPETENCY	COURSE CONTENT	Extent of Mention			SUPPLEMENTARY IN-SERVICE CONTENT
		Total	Bac.	Grad.	
Collaborates in assessing influences on employees' health	Psychological factors in industrial change	16	12	4	
	Impact of social legislation	4			
	Work environment	4			
	Family life	4			
	Health and accidents	4			
	Characteristics of a work environment†	52	4	48	Characteristics of organization
	Supervisor-employee relationship and influence on health (1)	4			
	Attitudes toward authority (1)	4			
	Systems of relationships (1)	4			
	Security of work (1)	4			
	Sources of intra- and inter-group tension	4			
	Sources of extra-plant stress	4			
	Blocks to individual progress	4			
	Types of productive systems	4			
	Systems of intra-company communications	4			
	Attitudes toward company	4			
	Effect of deadlines	4			
	Incentive systems	4			
	Emotional aspects of management-labor relationships	4			
	Effects of exposure to hazardous, stressful, and routine jobs	12	3	9	
	Individual	4			
	Family	4			
	Community	4			
	Personal characteristic patterns of employees in hazardous, stressful, and routine jobs	12	1	11	
	General personality	4			
	Approach to living	4			
	Economic need for accepting job	4			
		92	20	72	

SPECIFIC PROTECTION -Self-actualization

COMPETENCY	COURSE CONTENT	Extent of Mention			SUPPLEMENTARY IN-SERVICE CONTENT
		Total	Bac.	Grad.	
Participates in and conducts systematic studies relating to environment	Identification of a problem in environment	8	6	2	
	Criteria for identification	4			
	Methods of identification	4			
	Use of research findings (repeat - Health Promotion - Self-Actualization)	12	3	9	
	Work setting as a source of data, including specific sources, i.e., records, reports, environment, employees	4	1	3	
	Research methodology (See Health Promotion - Self-Actualization)	20	2	18	
Collaborates in evaluating total program for environmental control	Philosophy, objectives, and standards for an environmental control program	16	0	16	
	Current standards	4			
	Development	4			
	Components	4			
	Use and implementation	4			
	Effect of environmental changes on future health needs	12	0	12	
	Interrelationship of environmental factors	4			
	Influences on health	4			
	Methods of control	4			
	TOTALS	72	12	60	

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† Figures in parenthesis apply to baccalaureate level.

COMPETENCY	COURSE CONTENT	Extent of Mention			SUPPLEMENTARY IN-SERVICE CONTENT
		Total	Bac.	Grad.	
Provides emergency care for physical injury and illness	Principles and practice of first aid Definition Basic principles Care of specific injuries and conditions Limitations Legal responsibilities	18 2 4 4 4 4	18	0	
	Medical directives for emergency care Development Philosophy and objectives Legal implications	12 4 4 4	3	9	Medical directives for occupational health nursing service in organization
	Occupational and non-occupational disease conditions Definitions Implications of each category on nursing care	7 3 4	5	2	
	Legal aspects of nursing in occupational health General legal process Malpractice Insurance	12 4 4 4	9	3	Specific legal aspects of occupational health
	Recognition of pathological process Signs and symptoms Diagnostic testing for nursing judgment	8 4 4	6	2	
	Establishing individual priorities Criteria for decision	4 4	3	1	
	Phenenoma of pain Nature of pain Nursing management Impact on family, co-workers	12 4 4 4	9	3	
Intervenes to assist employee seeking medical care for identified disease process	System of referrals Philosophy of continuity of health and nursing care Components of referral Operation of a referral system Relationship of occupational health nurse and health facility	16 4 4 4 4	12	4	Referral system for organization
	Comprehensive nursing care Definition and philosophy Components Methods of providing	12 4 4 4	9	3	Nursing procedures for occupational health service within the organization
	TOTALS	101	74	27	

EARLY DIAGNOSIS & PROMPT TREATMENT - Safety & Protection

COMPETENCY	COURSE CONTENT	Extent of Mention Total	Bac.	Grad.	SUPPLEMENTARY IN-SERVICE CONTENT
Collaborates in providing safe environment for employee with limited health problem	Components of job placement	19	4	15	Philosophy and policies of organization
	Philosophy and objectives of appropriate placement	4			
	Safety considerations	4			
	Identification of demands of job operation on health of employee	4			
	Responsibility of supervisor	3			
	Re-evaluation of employee	4			
Collaborates in promoting security of employee and family from economic stress due to occupational illness or injury	Workman's Compensation Act	24	6	18	Role of nurse in Workman's Compensation claims
	Historical development	4			
	Influences on work setting, health, rehabilitation	4			
	Philosophy and objectives	4			
	Benefits	4			
	Operational details	4			
	Trends	4			
	TOTALS	43	10	33	

EARLY DIAGNOSIS & PROMPT TREATMENT - Social

COMPETENCY	COURSE CONTENT	Extent of Mention Total	Bac.	Grad.	SUPPLEMENTARY IN-SERVICE CONTENT
Collaborates in assessing and providing services to control influence from employee and group disorganization on social change or health	Social changes	15	11	4	
	Need for	3			
	Symptoms	4			
	Influences on established behavior and attitudes	4			
	Expected outcomes	4			
	Individual disorganization, e.g., alcoholism, addiction, anti-social behavior	8	6	2	Specific programs in organization
	Etiology, incidence, signs and symptoms, clinical course, prognosis treatment and rehabilitation	4			
	Influences on family, work setting, community	4			
	Group disorganization, e.g., family conflict, deliquency, racial conflict, rebellion, crime	12	3	9	Specific programs in organization
	Etiology, incidence, signs and symptoms, clinical course, expected outcomes	4			
	Effect of disorganization on individual, family, work setting, community	4			
	Programs for control or relief, e.g., community, industry, union	4			
Collaborates in assessing and providing services for control of short term absences	Absenteeism	18	2	16	Philosophy, policies, program in organization
	Philosophy of prevention	3			
	Identification of causes	4			
	Sources and use of data	4			
	Over-all absence rates	3			
	Socio-economic aspects of absenteeism for individual, family, industry	4			
	TOTALS	53	22	31	

EARLY DIAGNOSIS & PROMPT TREATMENT
Psychological

COMPETENCY	COURSE CONTENT	Extent of Mention Total	Extent of Mention Bac.	Extent of Mention Grad.	SUPPLEMENTARY IN-SERVICE CONTENT
Provides emergency care for emotional crisis for employee	Physiological reaction to stress	8	6	2	
	General Adaptation Syndrome	4			
	Homeostasis	4			
	Anxiety	22	17	5	
	Definition	3			
	Levels	3			
	Manifestations	4			
	Reduction of anxiety	4			
	Constructive use of anxiety	4			
	Effect on individual, family, co-workers	4			
	Therapeutic nurse-patient relationship	16	12	4	
	Characteristics	4			
	Developmental stages	4			
	Therapeutic community	4			
	Therapeutic vs. psychotherapeutic function	4			
	Crisis	12	3	9	
	Crisis theory	4			
	Types of crises, e.g., emotional disturbances, suicidology, disasters	4			
	Effect of crises on individual, family, community, work setting	4			
Assesses effect of stress on employee	Identification of stress factors in work setting	8	2	6	
	Methods of identification	4			
	Effect on individual, family, community	4			
	Programs available for reduction of stress on employee	4	1	3	
	Mental health programs for executives	4			
	Effect of repeated exposure to illness, suffering, traumatic experience, death	12	9	3	
	Influence on attitudes and behavior	4			
	Psychology of repetitive stress	4			
	Identification of individual, family, group with exposure	4			
	TOTALS	82	50	32	

EARLY DIAGNOSIS & PROMPT TREATMENT
-Self-actualization

COMPETENCY	COURSE CONTENT	Extent of Mention Total	Extent of Mention Bac.	Extent of Mention Grad.	SUPPLEMENTARY IN-SERVICE CONTENT
Sets climate conducive for employee to seek health care	Awareness of need to seek health care	8	6	2	
	Self-responsibility for health needs and problems	4			
	Characteristics of climate for seeking care	4			
	Involvement of individual in recognition of his problem	12	9	3	
	Philosophy	4			
	Methods	4			
	Teaching problem-solving approach	4			
	TOTALS	20	15	5	

COMPETENCY	COURSE CONTENT	Extent of Mention			SUPPLEMENTARY IN-SERVICE CONTENT
		Total	Bac.	Grad.	
Provides care to relieve signs and symptoms of illness and injury	Case-finding process	14	11	3	
	Definition	4			
	Methods	4			
	Compilation of data	4			
	Use of data	4			
	Medical directives and standing procedures	12	9	3	Medical directives and standing procedures for occupational health nursing program
	Development	4			
	Use	4			
	Legal implications	4			
	Professional nursing skills (as described in Chapter IV)	4	3	1	
	Technical nursing skills	4			
	Nursing care plans for active but ill individuals	8	6	2	Nursing care plan in nursing service for organization
	Development	4			
	Use of plan	4			
	Common pathophysiology	36	27	9	
	Disease causation	8			
	Acute and Chronic				
	Body chemistry; e.g., fluid and electrolyte balance	4			
	Incidence	4			
	Etiology	4			
	Clincial course	4			
	Treatment	4			
	Prognosis	4			
	Preventive measures	4			
	Nurse-private health care relationship	12	9	3	
	Organization of private health care	4			
	Responsibility of nursing to private health care	4			
	Responsibility of private health care to nursing	4			
	Work setting and chronic illness	12	9	3	Philosophy and policies for organization
	Effect of individual's physical changes on individual, family, co-workers	4			
	Adjustment of medical regime to fit work schedule	4			
	Incidence and trends in chronic illness	4			
	TOTALS	98	74	24	

DISABILITY LIMITATION - Safety & Protection

COMPETENCY	COURSE CONTENT	Extent of Mention			SUPPLEMENTARY IN-SERVICE CONTENT
		Total	Bac.	Grad.	
Collaborates in providing safe environment for employee with disease process	Protection of individual with illness	12	9	3	
	Appropriate job placement	4			
	Nurse as liasion between employee and employer	4			
	Follow-up by nurse	4			
	Anticipatory guidance	10	8	2	
	Definition	2			
	Identification of need and opportunities	4			
	Follow-up of teaching	4			
	Effects of drug therapy on ability to work	8	6	2	
	Action of common drugs	4			
	Adverse reactions	4			
	Components of job placement (repeat - Early Detection and Prompt Treatment - Safety and Protection)	19	5	14	Philosophy and policies of organization
	TOTALS	49	28	21	

DISABILITY LIMITATION - Social

COMPETENCY	COURSE CONTENT	Extent of Mention			SUPPLEMENTARY IN-SERVICE CONTENT
		Total	Bac.	Grad.	
Assesses socio-economic needs of employee and family with disease process	Effects of illness on individual, family and work setting	12	9	3	
	Characteristics of chronically-ill individuals	4			
	Impact of illness-social and economic	4			
	Perception of illness	4			
	Socio-economic effects of displacement from established group membership	8	6	2	
	Impact of displacement on individual, family, work setting	4			
	Economic aspects	4			
	Health insurance for catastrophic illness	8	6	2	Medical insurance plan for organization
	Major medical insurance	4			
	Other insurance coverages	4			
	Social aspects of chronic illness	20	15	5	
	Effect on family	4			
	Effect on social activities	4			
	Effect on daily living	4			
	Effect on economic ability	4			
	Assessing needs of family with chronic illness	4			
Collaborates in planning and intervenes to enable adaptation of employee and family with illness	Componenets of nursing program for absence	12	1	11	Philosophy, policy, program for health service
	Philosophy and objectives for program	4			
	Use of home and hospital visits, telephone calls	4			
	Home care programs	4			
	Community health agencies related to illness	8	2	6	
	Disease-related agencies	4			
	Nurse-agency relationship	4			
	TOTALS	68	39	29	

COMPETENCY	COURSE CONTENT	Extent of Mention			SUPPLEMENTARY IN-SERVICE CONTENT
		Total	Bac.	Grad.	
Assesses emotional needs of employee and family with disease process	Behavioral aspects of disease process	8	6	2	
	Behavioral component of disease	4			
	Behavioral differences of health and ill individuals	4			
	Effect of illness on individual, family, work setting	28	21	7	
	Impact of illness - emotional	4			
	Perception of illness	4			
	Characteristics specific to common illnesses	4			
	Influence of source of illness on recovery rate	4			
	Characteristics of individual with chronic illness	4			
	Emotional aspects of chronic illness	4			
	Need for meaningful activity	4			
	Effect of displacement from established group membership	12	9	3	
	Impact of displacement on individual, family, work setting	4			
	Identity aspects	4			
	Value-shift	4			
Plans and intervenes to enable employee and family to cope with emotional aspects of illness	Emotional support	12	9	3	
	Definition	4			
	Recognizing need	4			
	Means of providing	4			
	Process of dying	28	21	7	Philosophy and policy for organization following death of employee
	Physical and emotional signs of impending death	4			
	Grief	4			
	Individual's philosophy and attitude toward death	4			
	Sudden death and slow death	4			
	Reactions to impending death and actual death	4			
	Adjustment patterns of family, co-workers	4			
	Value of mourning period	4			
Provides care for employee with mental illness	Common pathopsychological processes	32	24	8	Incidence and employees with mental illness in organization
	American Psychiatric Association classification	4			
	Influence of mother-child relationship	4			
	Incidence	4			
	Etiology	4			
	Clinical course	4			
	Treatment	4			
	Prognosis	4			
	Prevention	4			
	Community mental health facilities	8	6	2	
	Philosophy and objectives	4			
	Legislation	4			
	Public and professional attitudes toward mental health and illness	4	3	1	
	Attitudes, effects, and trends on practice and facilities	4			
	Mental illness in work setting	11	8	3	
	Incidence	3			
	Etiology from work setting	4			
	Influence of illness on co-workers	4			
	Medical insurance plans for care of mental illness	4	1	3	Mental insurance plans for organization
	Trends	4			
	TOTALS	147	108	37	

COMPETENCY	COURSE CONTENT	Extent of Mention Total	Extent of Mention Bac.	Extent of Mention Grad.	SUPPLEMENTARY IN-SERVICE CONTENT
Collaborated in providing opportunity for meeting growth potential needs of employee	Identification of growth potential in individual with illness	11	8	3	
	Need	3			
	Methods of promoting	4			
	Growth opportunities	4			
	Self-realization of lowered level of wellness	20	15	5	Impact of rejection of treatment on employment status
	Sick-role - meaning and preventive aspects	4			
	Changing perceptions toward illness-individuals and public	4			
	Stigma of certain illnesses	4			
	Illness as one aspect of total life field of individual	4			
	Impact of rejection of treatment by individual	4			
	Self-recognition of nursing's limitations	8	6	2	
	Acceptance of limitations	4			
	Interpreting to health professionals and public	4			
Collaborates in evaluating total program for ill and injured employees	Philosophy, objectives, and standards of program- for ill and injured	8	2	6	Philosophy, policy and program in organization
	Current thinking	4			
	Trends	4			
	Effect of changing medical care and organization of delivery of health service	12	9	3	
	Legislation	4			
	Community responsibility	4			
	Changing role of nurse	4			
	Nurse as ombudsman	8	6	2	
	Definition	4			
	Means	4			
	TOTALS	67	46	21	

REHABILITATION - Physiological

COMPETENCY	COURSE CONTENT	Extent of Mention Total	Bac.	Grad.	SUPPLEMENTARY IN-SERVICE CONTENT
Collaborates in assessing physical needs	Philosophy of rehabilitation	15	12	3	
	Definition	3			
	Need	4			
	Target group	4			
	Types of services	4			
	Identification of functional abilities	8	6	2	
	Methods	4			
	Use of remaining abilities	4			
Plans and intervenes to provide fullest functioning	Activities of Daily Living	8	6	2	
	Philosophy	4			
	Adapting activities for individual	4			
	Techniques of physical therapy	20	15	5	Physical therapy techniques and equipment in health program
	Rationale for use	4			
	Active and passive exercising	4			
	Hydrotherapy	4			
	Heat applications	4			
	Use of brace, crutches and adaptive devises	4			
	Development of self-help techniques to permit independence	8	6	2	
	Methods	4			
	Teaching techniques	4			
	Community services for home care, i.e.,	12	3	9	
	Meals on Wheels	4			
	Home care programs	4			
	Transportation services	4			
	TOTALS	71	48	23	

REHABILITATION
Safety & Protection

COMPETENCY	COURSE CONTENT	Extent of Mention Total	Bac.	Grad.	SUPPLEMENTARY IN-SERVICE CONTENT
Collaborates in providing safety of environment	Protection needs of individuals with disability	12	9	3	Philosophy and policy for organization
	Home	4			
	Work setting	4			
	Community	4			
	Safety record for individuals with disability	8	2	6	
	Attitudes				
	Rates				
	Cognizance of limitations	4	3	1	
	Identifying limits	4			
	Principles of job placement in rehabilitation	8	2	6	
	Fitting job and worker	4			
	Need for meaningful, satisfying employment	4			
	TOTALS	32	16	16	

COMPETENCY	COURSE CONTENT	Extent of Mention			SUPPLEMENTARY IN-SERVICE CONTENT
		Total	Bac.	Grad.	
Assesses socio-economic needs of employee and family	Socio-economic aspects of rehabilitation	28	7	21	
	Social adjustment	4			
	Influences of disability on family life	4			
	Family influences on social adjustment	4			
	Barriers to employment	4			
	Adjustment of co-workers	4			
	Expectations of co-workers and other employees	4			
	Financial stress and sources of funds	4			
	Rehabilitation of minority groups in work setting, i.e., religion, race, socio-economic class, sex, age	28	7	21	
	Adjustment of individual to groups	4			
	Adjustment of co-workers	4			
	Development of work habits and attitude	4			
	Source and background of employee	4			
	Health needs	4			
	Habilitation of individual to work	4			
	Stigma of background	4			
Plans and intervenes to promote social adaptation of employee	Modification of immediate environment	12	9	3	
	Identifying needs	4			
	Effecting changes	4			
	Evaluation of results	4			
Collaborates with community health facilities	Community rehabilitation services	16	4	12	Community rehabilitation services in local area
	Sheltered workshops	4			
	Vocational Rehabilitation Agency	4			
	Rehabilitation in hospitals	4			
	Facilities for specific disability	4			
	Industrial, union, and insurance carrier rehabilitation service	8	2	6	Philosophy, policy, program in organization
	Hire the Handicapped Program	4			
	Services by insurance carriers, unions	4			
	TOTALS	92	29	63	

REHABILITATION - Psychological

COMPETENCY	COURSE CONTENT	Extent of Mention			SUPPLEMENTARY IN-SERVICE CONTENT
		Total	Bac.	Grad.	
Assess emotional needs of employee and family	Emotional aspects of rehabilitation Coping and grieving Value-shift Changes in body image Stages in personal adjustment and acceptance of disability	16 4 4 4 4	12	4	
	Effects of disability on family and co-workers Perceptions Reactions	8 4 4	6	2	
	Special rehabilitation problems of employee with emotional illness Self-acceptance Impact on co-workers Acceptance by co-workers	12 4 4 4	3	9	Identified needs of employees in organization
Plans and intervenes to promote emotional adjustment of employee, family, co-workers	Trends in rehabilitative care Sheltered workshops Half-way houses Day and night care centers	12 4 4 4	9	3	Facilities in local area
	TOTALS	48	30	18	

REHABILITATION - Self-actualization

COMPETENCY	COURSE CONTENT	Extent of Mention			SUPPLEMENTARY IN-SERVICE CONTENT
		Total	Bac.	Grad.	
Plans and intervenes to promote fullest restoration potential	Striving for highest potential and growth Philosophy and attitude Identification of growth opportunities	8 4 4	6	2	
Collaborates in evaluating rehabilitation program	Philosophy, objectives, and current standards for a rehabilitation program Development Trends	8 4 4	2	6	Philosophy, policy, program for organization
	TOTALS	16	8	8	

CHAPTER VII

THE ACHIEVEMENT TEST IN OCCUPATIONAL HEALTH NURSING

In January, 1966, it became evident that another way of utilizing the content in the theoretical framework could result in the development of an achievement test in occupational health nursing. The purpose of the test was three-fold; (1) to assess what students bring to nursing that relates to occupational health nursing,(2) to evaluate whether the graduating seniors have the basic knowledge in occupational health nursing that all professional nurses need to function in any capacity, and (3) to measure quantitatively occupational health nursing knowledge obtained in any baccalaureate nursing program, regardless of whether or not the collegiate curriculum provided for systematic presentation of occupational health content.

Development

Learning opportunities were made available to the Principal Investigator for development of the necessary skills in test development by both the NLN and the Educational Testing Service, Inc. Appropriate readings were also undertaken.(1, 2, 3, 4, 5, 6, 7)

The competencies and academic content from the theoretical framework were used as the point of reference from which the items were developed. In the initial effort, attempts were made to write a representative percentage of test items for each of the 25 categories in the theoretical framework of content for occupational health nursing. The concomitant distribution percentages for the levels of prevention were 50 percent for preventive aspects, 25 percent for curative aspects, and 25 percent for restorative aspects. The distribution percentages for the five-needs hierarchy were identical, 20 percent for each area of need (Table IV).

However, with overlapping of items in categories and continuing revisions of the content, the original percentage arrangement could not be maintained as representatively as desired.

With these assumptions the first test consisted of 102 multiple choice items (four alternative answers). Six University of Tennessee College of Nursing faculty members, representing various levels of preparation and areas of speciality, were asked to answer the items and made critical comments, particularly regarding clarity. After suggested revisions were integrated, the test, consisting still of 102 items, was mailed to 25 occupational health nurses functioning at various levels of practice throughout the country. These nurses were selected from a list submitted by the Project Officer. They were instructed to

TABLE IV

PLACEMENT GRID OF FIRST SET OF ITEMS

NEEDS SYSTEM

		Level of Prevention				
		Prevention, 50%		Curative, 25%	Restorative, 25%	
		Health Promotion	Specific Promotion	Early Diagnosis and Prompt Treatment	Disability Limitation*	Rehabilitation
20%	Physiological					
20%	Safety					
20%	Love and Belonging (Social)					
20%	Esteem (Psycho-logical)					
20%	**Self-**Actualization					

*"Disability Limitation" areas of Levels of Prevention, it may be noted, is split into both curative and restorative aspects.

mark the correct response for criteria purposes and also to assess the value of each item. Value was defined as how important knowledgeability of the content area of each item was for the occupational health nurse practitioner. Of the 25 nurses contacted 20 responded.

These data were discussed with the project consultant in test construction. It was recommended that additional items be developed with the idea that two equated 50-item tests might result. Forty additional items were constructed and were reviewed by the same selected faculty members and the same practicing occupational health nurses in a similar fashion as before. The initial criteria for correct answers were based as much as possible on two or more printed references. Considerable rewording of items was done as a result of the comments from the nurses.

The 142 test items were evaluated for clarity and were verified for accuracy of stem and correct alternative by the project's ad hoc Occupational Health Committee, both individually and as a group. Unanimity as to keyed accuracy was required for item acceptance. Four items were eliminated by this group, leaving 138 items.*

Assessment

At the end of the 1967 spring quarter, the test of 138 items was administered at The University of Tennessee to 16 (73 percent) of the graduating senior students; 40 students (80 percent) in the junior class; and 36 (72 percent) in the sophomore class. Out-of-class time was scheduled for a majority of the students to take the test. The time needed to complete the 138 items varied from one hour to 2½ hours with approximately 1½ hours as average time.

In May 1967, representatives of the NLN Testing Service were consulted regarding 1) scoring and analysis of the test items administered to the students of The University of Tennessee College of Nursing and 2) the possibility of and procedure for national standardization. It was agreed that the scoring and items analysis for the first administration of the items to The University of Tennessee student body would be done by the NLN. The NLN representatives proposed consideration for undertaking the national standardization on a contractual basis with The University of Tennessee. In preparation for this plan, an additional 32 items were developed and reviewed as before by the project's ad hoc Occupational Health Committee. This was accomplished through mailings. Subsequently the NLN Testing Service withdrew from participation in the test standardization.

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*Since the test and test materials are intended for future testing purposes, no specific information is presented in this report concerning the test items or the instructions for giving or taking the test.

In the fall of 1967 the 32 new items were administered to the 40 seniors and the 36 juniors who had taken the original items. The entire test of 171 items was also administered to 53 entering sophomore students. (See Table V for Initial Analysis of the Testing Program.) Inspection of Table V shows a relatively increasing percentage of correct responses with each level of progression (by year) of the nursing students. This hoped-for result indicated that, in a general way, the total test was being developed adequately.

After the NLN withdrawal, national standardization was undertaken by project personnel on the recommendation of the project consultant in test construction. In the first nationwide administration of the test, 15 out of 40 randomly selected NLN-accredited collegiate schools of nursing participated. Six hundred tests were requested by and sent to the schools of nursing. Of the 350 answer sheets completed and returned by graduating seniors, 293 were usable. Among the reasons for discarding 57 of the returned answer sheets were (1) some respondents were students who were already registered nurses with varying types and years of experience in nursing and (2) some tests were not completed. The answer sheets were machine-scored and all items computer-analyzed.* The combined results from all schools were:

Number of subjects:	293 (including 41 University of Tennessee nursing students)
Number of items:	171
Mean (raw score):	100.00
Standard deviation:	12.3
Range:	47-132

An overall Analysis of Variance (ANOVA) indicated a significant statistical difference between schools on the test ($F = 13.90$; $p < 0.01$).

Included in the analysis of each of the 171 items for all respondents (N=293), including The University of Tennessee graduating seniors (N=41), were:

1 Numbers of choices for each alternative on each item,

2 Percentage of choices for each alternative on each item,

3 Mean numbers correct on all items for all the subjects using each of the four alternatives for each item,

4 Point-biserial correlations of each item on each choice between correctness of choice of alternative and mean score on test.

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*The machine-scoring and most statistical analysis on the two national mailing were performed by The University of Tennessee-Biometric Computer Center under the direction of Mr. Walter Lafferty.

TABLE V

INITIAL ANALYSIS OF TESTING PROGRAM*

	No. of Students	No. of Questions (maximum possible score)	Mean No. and Percent correct	Standard Deviation of Number Correct	Numerical and Percentage Ranges of scores
Class of 1967 (Graduating seniors)	16	138	88.37(64%)	8.32	78-109 (56%-79%)
Class of 1968 (Late juniors, early seniors)	40	171	100.35(60%)	10.87	80-125 (46%-73%)
Class of 1969 (Late sophomores, early juniors)	36	171	95.22(56%)	8.99	72-112 (42%-66%)
Class of 1970 (Entering sophomores)	53	171	85.38(50%)	10.01	53-103 (30%-60%)
Total	145				

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*Results from first administration of test to University of Tennessee College of Nursing Students (May-October 1967).

Following this statistical analysis, all items were evaluated by means of criteria for useability in an item-analysis fashion. (1, 3, 8)

The criteria are listed in order of importance:

1 Point-biserial correlations reaching 1 percent level of significance with one-tail test for correct alternative,

2 Point-biserial correlations reaching 5 percent level of significance with one-tail test for correct alternative,

3 Point-biserial correlations for incorrect answers should all be minus and roughly of the same magnitude,

4 Mean total score for subjects responding with correct alternative should be consistently higher than each mean total score for subjects with incorrect alternative answers,

5 The percentage of subjects giving correct answers for each item should be between 60 and 70 percent.

Of the 171 items evaluated in this manner, 16 met all of the above criteria, 59 met all except criteria 5, 1 failed criteria 1 only, 4 failed criteria 3 only, 5 failed criteria 3 and 5, 4 failed criteria 1 and 5, while 2 failed criteria 1, 3, and 5. These 91 items were retained for further standardization purposes. Twenty-two items did not meet any of the five criteria; 17 did not meet four of the criteria; 15 did not meet three criteria (1 and 3 or 4 or 5); 20 did not meet two criteria; and 6 did not meet criteria 5. These 80 items were set aside.

Before the second nationwide testing, 23 additional items were developed to fill in areas of content within the theoretical framework not covered by the test after the 80 items had been discarded, making a total of 114 items. The 23 test items were evaluated for clarity and correctness by the Principal Investigator and the research consultant and by means of documentation. For this second nationwide administration, 17 out of a new group of 40 randomly-selected and approached NLN accredited baccalaureate schools of nursing requested a total of 1011 tests and machine-scored answer sheets. Of these 17 colleges, 12 returned 350 usable answer sheets and 21 unusable ones. The usable answer sheets from the graduating seniors at The University of Tennessee College of Nursing, who again cooperated, made a total of 387 usable answer sheets for this standardization attempt. Average time for completion of this form of the test was less than one hour. A similar statistical and item analysis, as in the first standardization attempt, was performed.

The combined results for all schools were:

Number of subjects: 387
Number of items: 114
Mean (raw score): 74.9
Standard deviation: 9.7
Range: 26-93

Another Analysis of Variance (ANOVA) again yielded statistically significant differences on the test between schools (F=10.62; p<0.01).

Of the 114 items, 17 met all the five previously mentioned criteria. Criteria 5 was not met by narrow margins by 25 items and by fair margins by 16 items. Two items did not meet criteria 3; 1, criteria 3 and 4; and 1, criteria 1 and 5. This analysis yielded a revised total of 62 possible items. Fifty-two items were discarded as inadequate. A further analysis of the items discarded after the first national administration indicated that 13 should be reconsidered for possible future use.

With the utilization of only the presently acceptable 62 items, a breakdown by category of the theoretical framework shows reasonably adequate match of number of items in terms of percentage of assigned "extent of mention" for the professional nursing student. The following categories seemed somewhat over-represented by test items: Health Promotion - Self-Actualization, Early Diagnosis and Prompt Treatment - Safety and Protection, Early Diagnosis and Prompt Treatment - Social, and Rehabilitation - Psychological. The categories Health Promotion - Physiological and Health Promotion - Social seemed under-represented by content of test items. New items are yet to be written for these under-represented categories.*

Status

It was hoped two comparable forms of this achievement test could be ultimately developed. In light of the authors' experience in developing adequate items, this may be a somewhat unrealistic goal. New items for the inadequately-covered content areas, the present 62 acceptable items, and the 13 possible items from the first test form should be administered to a large group of students (perhaps 1,000) for adequate standardization purposes. Furthermore, aside from senior nursing students, the expanded test should be administered (as was done at The University of Tennessee College of Nursing with the first test form) to nursing students on a cross-sectional basis (i.e., freshmen, sophomores, juniors, and seniors) to assess the relative validity of the test.

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*The statistical evaluation data have been referred to the NLN Measurement and Evaluation Services for the consideration of future work on this test and possible nation-wide utilization.

Reliability studies, if enough items for two tests cannot be developed, need to be done on one form of the test. A more complete analysis of the already existing test data might give additional information for direction of test development. At any rate, the test is such that considerable effort is still warranted to develop it as an acceptable achievement test in occupational health nursing.

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CHAPTER VIII
FINDINGS

The four parameters of the project that have primary implications for nursing educators and to some extent for nurses in occupational health are (1) the theoretical framework and its educational applications, (2) a methodology for analyzing a content area of a nursing curriculum, (3) the achievement test in occupational health nursing, and (4) suggestions for meaningful learning experiences for professional nursing students in the work setting.

The Theoretical Framework

The availability of a theoretical framework is readily perceived by nursing educators as a requirement for curriculum construction. The framework described herein provides guidelines for meeting Mayhew's suggestions for curriculum analysis and evaluation, such as exposure of imbalances and omissions in a curriculum and provision of limits within which a course of study might be constructed. It would thus fill the need that apparently exists for an organized approach to identifying the content and objectives of an educational program. In addition, the theoretical framework through its six components, which are identified and discussed below, provides a method for structuring the curriculum desired.

1 Integration of two theories with the nursing process as a pattern for curriculum development and evaluation: The theoretical framework integrates the theories of levels of prevention and hierarchy of needs with significant activities of the nursing process. The framework thus provides a feasible method for identifying nursing competencies specific to occupational health nursing; and other speciality areas in nursing for example, community health, medical-surgical, maternity, or psychiatric nursing. Its use in identifying more specific content areas such as cardiac, neurological, or orthopedic nursing is an untested possibility. By identifying the expected competencies in terms of the nursing process, the relevance of the content becomes more readily evident. It might even be possible to build a total curriculum in baccalaureate nursing by using the methodology suggested in this study.

2 Identification of competencies of the professional nurse in occupational health (Appendix D): The competencies identified within the framework should be useful to nursing educators as determinants of the elements to be included in course content relating to the role of the professional nurse in occupational health. The competencies provide a more detailed description of on-the-job activities of the occupational health nurse than were previously provided.

These competencies might also be used by occupational health nursing leaders (1) in developing job descriptions for the role of the nurse in industry, (2) in developing short-term training programs, and (3) in constructing nursing manuals for use in occupational health settings.

3 Identification of appropriate academic occupational health nursing content at the baccalaureate level (Chapter VI): The suggested academic content that has been identified could be used in baccalaureate education for nursing students. Emphasis in this project has been placed on the unity of baccalaureate nursing programs by not separating occupational health nursing content in the curriculum from the whole. The theoretical framework itself identifies and demonstrates this oneness in nursing; and, in keeping with the discussions by the original ad hoc committee, the Principal Investigator has identified content in occupational health nursing in relation to the basic curriculum. As Ditchfield suggested, the greatest amount of academic content essential for the occupational health nurse practitioner is also essential for all nursing practitioners. Undergraduate learning experiences for all nursing students may be greatly enriched by more exposure to the health concerns of the adult working population.

4 Identification of appropriate occupational health nursing content at the graduate level (Chapter VI): Occupational health nursing content that is solely graduate level is identified, as well as the content that begins at the baccalaureate level and continues through graduate study. Use of the methodology in graduate level education is more fully discussed in a following section in this chapter. When baccalaureate nursing programs meet this project's content criteria ("extent of mention" in all categories), then the definition of a graduate program deemed sufficient to reach a clinical specialty level in a broad community health nursing graduate program will be more feasible.

5 Identification of appropriate occupational health nursing content for in-service education (Chapter VI): Occupational health nursing content specifically applicable to the work setting, has been identified. Practitioners in occupational health nursing, particularly those concerned with in-service programs, should find the identified content useful as a guide in planning and implementing in-service programs. The content may also be used in establishing expectations for employers for a newly-graduated professional nurse.

6 A tool for curriculum evaluation: The over-all theoretical framework, as well as the method of data collection, is at present adequately developed for utilization by nursing educators in assessing the occupational health nursing content of their curricula. This provides one set of criteria against which the curriculum content may be measured.

A Methodology for Analyzing a Nursing Curriculum

The methodology created during the course of this project is within the purposes of the project as stated in Chapter IV:

1 To identify that content from occupational health nursing which is essential for professional nursing education and practices, and

2 To develop a methodology for identifying given content areas within a course of study.

At no time has the content from occupational health nursing been delineated as an area independent of nursing content as a whole, but rather it has been seen as permeating the entire academic content suggested for professional students of nursing.

The methodology to identify a given area of content within a course of study can also be used to assess the following aspects of any nursing curriculum: (1) the overall strengths and weaknesses in a course of study, (2) the adequacy and depth of coverage of the given topic, (3) the extent and manner of content overlap, and (4) the specificity of existing and desired content areas and intensity of coverage in particular courses or on particular levels of progression (1st, 2nd, 3rd, 4th year) in the nursing program.

The methodology has these advantages: (1) it provides a nursing faculty with a common frame of reference, (2) it is a contemporary, relevant, and dynamic frame of reference, (3) it minimizes prolonged discussions as to the need for inclusion or exclusion of a given area of content, (4) it lends itself to systematic modification, (5) it requires significant cooperation and collaboration between faculties in nursing and non-nursing courses, (6) it leads to a breakdown in presently existing compartmentalization. In applying the methodology, it was found that the most time-consuming aspect was the data collection. The theoretical framework provides not only an up-to-date theoretical structure, but also a quantitative vehicle for evaluating any nursing curriculum, in fact any total curriculum. The findings from use of the framework in this project have significant long-range implications. If, for instance, each present specialty component as well as the liberal arts and science components were looked at by means of this theoretical framework, most if not all of the above noted advantages would be apparent. The results of the evaluation could indicate that the course structure presently existing in schools of nursing needs to be significantly modified. The results call for rethinking as to the role of traditional courses, such as chemistry, abnormal psychology, pharmacology, and medical-surgical nursing with the possibility of their merging into a new area specifically related to all chemical systems of man's existence on the health continuum. Reorganizing anthropology, sociology, epidemiology, preventive medicine, and public health nursing content into a cohesive, integrated, continuous area (perhaps a sequence) might possibly result in an ecological approach.

Use of Methodology in Changing Occupational Health Nursing Content in Baccalaureate Curricula

The quantitative assessment technique can be useful in collecting data on which to base recommendations for changing the occupational health nursing content in baccalaureate curricula. In Table III of Chapter V the number in line 5 indicates the approximate per cent of recommended coverage of the total knowledge exposure for each of the 25 categories at the baccalaureate level of nursing education; i.e.,

$$\frac{\text{Assigned "Mention", Bac. Ed. Level}}{\text{Assigned "Mention", Prof. Nurse in Occ. Hlth.}} = \text{\% of Bac. Level Coverage}$$

By quantitatively assessing a total curriculum by the methodology described in this manual, it could be determined whether the recommended approximate percent of coverage is achieved for each category.

For example, for the category labeled "Disability Limitation - Physiological," it has been recommended that approximately 75 percent of the content should be included at the baccalaureate level. If, on quantitative analysis, it should be found that a greater or lesser percent of coverage is present in the curriculum, a qualitative assessment of that category could be undertaken to determine which content areas were receiving less than adequate or more than adequate coverage.

Use of Methodology in Developing Graduate Programs in Occupational Health Nursing

Quantitative assessment techniques could also be used in developing graduate programs in occupational health nursing and/or in developing the occupational health nursing component of community health nursing programs.

The approximate percent of recommended coverage of the total knowledge exposure for each category at the graduate level may be determined by subtracting the number in line 5 of Table III in Chapter V from 100. The resulting percent would provide a guide to the amount of content coverage recommended for each category.

From the mean calculated for each level of prevention and for each need it was determined that the greatest amount of content needed at the graduate level is in the areas of Specific Protection (62 percent) and Safety (58 percent). The least amount of content needed at the graduate level is in the areas of Physiological (28 percent) and Disability Limitation (34 percent). The percentages range from 44 - 55 percent coverage on the graduate level for each remaining level of prevention and need. By using Chapter VI the suggested academic content could be very specifically identified, provided the baccalaureate level of content is known.

Achievement Test in Occupational Health Nursing

The achievement test is primarily directed to measuring the nursing students' knowledge in occupational health nursing. As such, nursing educators can use the achievement test as a specific test in evaluating the students' level of knowledge in occupational health nursing. The test also has possibilities as a component of the present battery of comprehensive examinations taken prior to graduation and as a part of state board examinations. A second broad area for utilization of the test is that all or parts could be used by testing services that develop examinations for employment screening and placement of nurses in occupational health positions. The use and validity of the test will be enhanced by the widest possible dissemination in its further development and standardization by a recognized national assessment agency, as is at this date (1970) under consideration.

Suggested Learning Experience for Professional Nursing Students in the Work Setting

Although no research in the occupational health environment was specifically and directly undertaken in The University of Tennessee project, nevertheless, note must be taken that in the labor force of the United States, composed of approximately 80 million individuals, there is a unique opportunity to study the "normal" active adult.

Ecological factors, promoting or undermining health, from a major segment of an individual's life can be assessed. By observation, one can recognize physical, social, cultural, or psychological influences on an individual. With additional attention, one can gain some insight into pressures from and reactions to these influences. Influences, such as increasing automation and computerization, the population explosion, decreasing work weeks, increasing unionization, increasing mobility, and exposure to new chemical and biological hazards are having an effect on employees. Spontaneous discussions elicit many pressures and influences. For instance, during a chance meeting with a long-haul truck driver, the author was able to learn first-hand about stressful factors in long distance trucking. With a few additional questions, the problems of fatigue, loneliness, and the strain and uncertainty of the hours of work became obvious. These factors most certainly affect one's health. They would also affect one's family - their health and interpersonal relationships. The manifestations of these conditions determine the direction of the nursing care needed to lessen the deleterious effects.

Exposure to the labor force in action can provide observations of "wellness" as described by Dunn.(1) The variety of levels of health is unlimited - from the employee reaching for peak-wellness to the one in poor health in a relatively unhealthy environment. Not only can individual wellness be studied, but elements of family, community, environmental, and social wellness are also subject to student observation.(2)

The transactions between the employee and the work setting offer opportunities for studying individuals learning the developmental tasks of adult life, as described by Havighurst.(3) Too frequently the growth and development content in nursing education stops with the adolescent, or theory only is presented for the active adult. The tasks after age eighteen are as important in fulfillment for an individual as the earlier tasks. Every one of us has been and continues to be in the process of learning these tasks.

The basic human needs and their influence on an individual's health play a major role in the relationship of an employee to his co-workers, the work setting, and to the family as well. Examples of the influence of basic needs on the health of an individual are unlimited. For instance, work is a major source of satisfaction and of the feeling of belonging for many people. Safety and protection needs as met in the work setting are basic to injury control programs, and to economic security programs. The effect of such programs on the health status of the adult are an important consideration for the nurse who is responsible for planning and giving care.

Observation of the work environment can help the student see the correlation of job and income and an individual's and his family's health. Numerous studies bear testimony to the effects of blue-collar work on health.(4)

Group cohesion or disorganization can be studied with the subsequent effects on health. The evidence of a feeling of esprit de corps, or its lack, in the work unit can be observed and felt by a perceptive student. The nursing team of which the student is a member should provide such an experience.

The student can be guided in the development of a philosophy of seeing an individual as a productive citizen - one with abilities and potential. So frequently, health personnel fall into the habit of looking at a person and seeing a diabetic, a cardiac, or a handicapped patient in a wheelchair. Awareness of limiting factors may be necessary, but focusing on strengths is essential. Movement in the reorganization of health care services is toward a great increase and broadening of ambulatory services for citizens at all levels of wellness. This trend in developing health services for promoting and maintaining health will require that nurses develop this wellness-oriented philosophy in addition to a pathophysiologic viewpoint.

A work setting with a health care facility can provide the student with the opportunity to function within an organized framework focusing on primary prevention. Most occupational health programs practice some forms of health promotion and maintenance. In a well-developed occupational health program, all levels of prevention on the "health-sickness continuum" can be studied. The opportunities are available for the nurse to participate in a program that permits her to interact with active, but ill adults who are developing their potential abilities and making a contribution to society.

The work environment provides for the student a rounding out of learning experiences regarding the concept of continuity of care. Much is written and said about continuity of care, but what might be the most difficult segment is seldom mentioned - that of returning the individual to being an active, productive citizen. Assisting an individual in adjustment to a job or assisting the co-workers in accepting him may be vital to the rehabilitation of an employee. In such a situation, a nurse could act as the liasion between place of employment and family setting by interpreting the health needs of an individual and thereby facilitating job placement.

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CHAPTER IX
RECOMMENDATIONS

The findings of The University of Tennessee project might well provide impetus to the integration of occupational health nursing content into nursing curricula and to the development of learning experiences for the professional nurse in the work setting. These experiences could be directly related to the role of the occupational health nurse or could provide observational or participational experiences for promoting the symthesizing of concepts needed by the professional nurse to function in any setting.

The unified approach in developing the competencies for the professional nurse in occupational health and the related academic content may well serve to hasten the practice of the expanded role of this nurse; also, it may start the move towards the fulfillment of the goals for community health nursing practice as set forth by the Community Health Nursing Division of Practice of the American Nurses' Association.(1)

With the expanded role for the professional nurse in occupational health outlined, nursing educators will be even more aware of the necessity for the inclusion of the essential content relating to occupational health nursing in the curricula of schools of nursing.

These implications lead to the presentation of the following immediate and long-range recommendations:

Immediate Recommendations

For Nursing Educators:

1 That the findings of this project be applied in assessing baccalaureate nursing programs of varying philosophies and in varying geographical locations.

2 That consultation from knowledgeable individuals be requested, as needed, by nursing educators to implement the findings of this project.

For Practicing Occupational Health Nurses:

1 That the academic content areas identified by this project be integrated into the philosophy and practice of occupational health nursing by means of formal courses in nursing and the supportive sciences, continuing education programs, and in-service education programs.

2 That the acquired academic content be integrated into the identified competencies of the professional nurse in occupational health by applicable modifications of nursing philosophy and practice in occupational health.

For Nursing Educators and Practicing Occupational Health Nurses

1 That, where geographically feasible, there be coordinated efforts in advancing the professional level of education and promotion of the establishment of clinical laboratory settings for the students of professional nursing.

2 That these individuals and State and Federal nursing consultants cooperatively support an organizational mechanism for the implementation of all of the above recommendations.

3 That appropriate organizations explore with available resources the possibility of the standardization of the achievement test in occupational health nursing.

Long-Range Recommendations

For Nursing Educators:

1 That consideration be given to establishing a graduate program in community health nursing in which occupational health nursing is an identifiable component.

2 That the described methodology be utilized to assess other content areas of the nursing curricula with close contact assured between the personnel in relevant and high caliber clinical laboratory settings and nursing educators.

3 That consideration be given to utilization of the described methodology in developing nursing theory.

For Practicing Occupational Health Nurses:

1 That mechanisms be instituted for the development of an awareness of the increasing need for working relationships between occupational health nurses and other community health nursing practitioners (public health, school health, and office nursing).

2 That the professional nurse in occupational health participate in the planning and implementation of the emerging reorganization in the health delivery system and that the role of the nurse expand accordingly.

For Nursing Educators and Practicing Occupational Health Nurses:

1 That the competencies and content for the professional nurse in occupational health be continually refined and redefined as the social, technological, industrial, and health aspects of the environment change.

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1 Community Health Nursing, Newsletter, Division on Practice, American Nurses Association, April, 1968, p.3.

CHAPTER X

SUMMARY

From 1965 to 1969 a project was conducted at The University of Tennessee College of Nursing to identify occupational health nursing content essential in baccalaureate education for professional nursing.

Relevant literature was reviewed in the areas of education, nursing, and occupational health nursing. After this review, a theoretical framework was developed and applied consisting of an integration of Leavell and Clark's levels of prevention approach to health care and Maslow's hierarchy of needs personality theory.

The meshing of these two theories produced 25 categories, each labeled with a level of prevention and a basic human need. Within each category, the competencies and thereby the role of the professional nurse in occupational health were spelled out as behavioral objectives in terms of the nursing process. Corresponding academic content was identified and delineated into levels of the educational program (baccalaureate, graduate, and in-service.) The content needed by the professional nurse in occupational health at the baccalaureate level, but equally essential to all nursing, was identified.

The theoretical framework was used to assess the occupational health nursing content of one baccalaureate program. The methodology included content data collection and analysis. The data were analyzed both qualitatively and quantitatively. Raw data and the actual findings from the assessment of The University of Tennessee College of Nursing curriculum were omitted from this publication, however, they were made available to the faculty of the program and to the Project Officer.

Items for an achievement test in occupational health nursing were developed from the competencies and content identified and a standardization process was started. Additional work is required for the standardization.

Recommendations of an immediate and of a long-range nature have been proposed for nurse educators and practicing occupational health nurses, individually and combined.

The implications of the results of the project fall into four areas: (1) Use of the theoretical framework and its application to nursing education;

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(2) use of the methodology in evaluating any content area of a nursing curriculum (with the content area of occupational health nursing already worked out); (3) continued refinement of the occupational health nursing achievement test; and (4) exploration of suggested ideas to provide additional meaningful learning experiences for professional nursing students in the work setting.

This discussion of The University of Tennessee project on occupational health nursing competencies and academic content has been presented in this publication as a ready source for use by nursing educators and to a lesser extent occupational health nurses.

. . . . You have been told also that life is darkness, and in
your weariness you echo what was said for the weary.
And I say that life is indeed darkness save when there
is urge,
And all urge is blind save when there is knowledge,
And all knowledge is vain save when there is work,
And all work is empty save when there is love;
And when you work with love you bind yourself to
yourself, and to one another, and to God.

And what is it to work with love?
It is to weave cloth with threads drawn from your
heart, even as if your beloved were to wear that cloth.
It is to build a house with affection, even as if your
beloved were to dwell in that house.
It is to sow seeds with tenderness and reap the harvest
with joy, even as if your beloved were to eat the fruit.
It is to charge all things you fashion with a breadth of
your own spirit,
And to know that all the blessed dead are standing
about you and watching . . .

Kahlil Gibran
(1833-1931)

Gibran, Kahlil. The Prophet. New York: Alfred A. Knopf, 1923, pp. 26-27. Quoted by permission of the publisher.

APPENDIX A

EDUCATION FOR OCCUPATIONAL HEALTH NURSING

Mary Louise Brown, R.N.

This appendix summarizes the course of occupational health nursing education up to the University of Tennessee project on which this manual is based. Only those events meaningful to understanding the emergence of the project itself are described.

1910-1920

The decade from 1910 to 1920 saw the initial appearance of the various skeins that were to be woven into the fabric of occupational health nursing; the industrial nurse herself as an aware and dedicated person; the field of practice as one of rich opportunities demanding expert workers with sound technical training; the organizations to meet the need for professional stimulation and leadership; the training programs ranging from short term courses to graduate level programs; and federal participation as a motivating force towards uniformity in excellence.

The effect of World War I on occupational health nursing practice and education was well expressed by one professor of public health nursing in 1919:

> Many returning nurses have already accepted positions in public health nursing, and it is significant that a large proportion, among them women of proved executive and teaching ability in other lines of work, are showing special interest in industrial nursing ...... The field of industry offers enormous opportunities for health work for the benefit of groups otherwise difficult to reach. The industrial nurse, since she spends her working day in the factory, is in many instances the agent on whom we must mainly rely to instruct industrial workers in the ways to prevent sickness and to maintain health.(1)

In 1915 the nurses working in industry in Boston formed the Boston Industrial Nurse Club. This club became the New England Association of Industrial Nurses in 1918. It continues to function and represents the beginning of organizations for professional industrial nurses. In 1942 it participated in the formation of the American Association of Industrial Nurses (AAIN).

Again in Boston, the first course of study designed for industrial nurses was begun in 1917 by the College of Business Administration of Boston University, a two 2-hour lecture a week course given over a 16-week period with 2 weeks of supervised field service in an industrial medical department.(2)

From October 1, 1918, to June 30, 1919, a comprehensive course for occupational health nurses was offered in cooperation with Yale University. The students had "exceptional advantages in their theoretical training, including lectures, laboratory facilities and excursions to factories and various industrial plants which illustrate the practical needs of public health and public health nursing."(3)

In 1914 the U.S. Public Health Service (USPHS) created a unit, The Division of Industrial Hygiene, dedicated solely to the protection of the health of American workers.(4) This division evolved into the present Bureau of Occupational Safety and Health, Consumer Protection and Environmental Health Service, U.S. Department of Health, Education, and Welfare.

1920-1930

The most significant development during the second 10-year period was the growing awareness of the need for specialized preparation that came out of studies of public health nursing practice. As a result of the conference convened by the Rockefeller Foundation in 1918, a committee with Professor C.E.A. Winslow as Chairman was appointed to prepare a definite proposal for a course of training for public health nursing. Miss Josephine Goldmark, appointed Secretary in June 1919, conducted the study and prepared the report which was published in 1923.

The Goldmark Report influenced nursing and nursing education in the United States probably more so than any other survey conducted before 1919 or thereafter. It seems appropriate to call attention to the report's conclusion and recommendations concerning industrial nursing:

> The industrial nurse shares with the industrial physician rich possibilities for preventive work. According to the census of 1920* a substantial proportion of our entire nation, 13 million men and women, spend their working day congregated in manufacture and mechanical pursuits, and another million and a quarter as sales persons in stores. ....While nurses in industrial work as in other specialities have achieved success through their own initiative and persistence, yet the lack of special training for this special field has been a grave handicap for the most capable and has often nullified the efforts of the less capable. No less indispensable

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*It is estimated that some 80 million men and women are so engaged. The 1968 ANA Facts on Nursing list 19,500 occupational health nurses.

> for the industrial nurse than for other public health nurses - for the detection of disease, incipient and acute, for education as well as curative work - is the preparation which we have already outlined for all public health nursing. This should consist of a basic hospital course of 2 years and 4 months, followed by sound training in public health nursing, with special emphasis and time devoted to training in industrial conditions.(5)

In 1920, the National Organization for Public Health Nursing (NOPHN) inaugurated an Industrial Nurse Section.

1930-1940

Many occupational health nurses lost their jobs during the depression of the 1930's. Those who were retained found that workers were seeking help with their family-related health and welfare problems. It must be remembered that workers did not have unemployment compensation insurance nor medical and hospital care insurance as so many do today. From this period can be traced the acceptance of health counselor and health educator as roles for the occupational health nurse. The nurse's original involvement in care for industrial injuries can be traced back to the influence of the workmen's compensation legislation enacted by the States beginning in 1913.

The decade of the 30's saw the expansion of the Federal Government's commitment with passage of the Social Security Act in 1935. Federal funds were provided to the USPHS for grants-in-aid to the States for public health work, including industrial hygiene. These grants stimulated the development of state industrial hygiene units. Nurse consultants were first added to these units in 1939 when the Indiana State Board of Health and early in 1940 when Michigan employed industrial nurse consultants to help industry and industrial nurses develop and upgrade health services for workers.(6)

The Industrial Hygiene Division of the USPHS initiated seminars to train health personnel to work in the state industrial hygiene units. These seminars were conducted for public health nurses employed by the Federal Government and those employed by State health units as industrial nurse consultants. Frequently, public health educators from the developing schools of nursing in universities and colleges also attended.

1940-1950

The 1940's are the World War II years in which Federal participation and expanded industrial nursing needs went hand and hand. In 1941 the USPHS Industrial Hygiene Division was asked to guide the development of industrial health programs in defense industries. The services of a full-time nurse consultant were requested and one of the public health nurse consultants was assigned to work with the physicians, engineers, and chemists in planning for nursing. This was the first specialized nursing consultant position created in the USPHS.

Early in 1940 the Public Health Nursing Section of the American Public Health Association (APHA) appointed a committee to study duties of industrial nurses. Industry in the meantime had expanded from peacetime to wartime production, and the number of nurses in industry had increased from over 5,500 in 1941 to about 10,000 by 1942 and to 11,200 by 1943. The PHS Industrial Hygiene Division collaborated with the APHA committee. The resulting report(7) served as a basis for determining the range and standards of industrial nursing practices, and for prescribing programs of study for industrial nurses. The report was written by occupational health specialists and emphasized the nurses' informational needs in industrial hygiene, occupational injuries and diseases, workmen's compensation, and safety. It supported the 1939 NOPHN's recommendation that courses in principles of teaching, social case work, community organization and resources, industrial relations, personnel administration, industrial hazards, nutrition, communicable disease control, mental hygiene, and personal hygiene should be included.(8)

AAIN was founded in 1942 to establish sound principles, standards, and policies in the field of education and in the practice of industrial nursing. In 1944 the AAIN Committee on Education outlined the first basic course for use by colleges and universities in preparing qualified professional nurses in industrial nursing.(9) In 1949 the AAIN Committee proposed "Criteria for Evaluation of Programs of Study in Industrial Nursing." This was used to a limited degree by the National Nursing Accrediting Service in approving programs of study.(10)

In 1944 the American Nurses' Association (ANA) through its Board of Directors approved the formation of the Industrial Nurse Section.(11) In 1958 the name was changed to Occupational Health Section in line with the movement to use "occupational" instead of "industrial" because the latter had the connotation of heavy industry and manufacturing.(12) Over the years committees from both the National and the State sections of the ANA presented reports that have influenced this field of practice, the most notable being the "Functions, Standards, and Qualifications for Practice of Occupational Health Nursing" first published in 1958 and revised in 1960 and 1968.(13)

Review of the professional literature from the middle 1940's to the middle 1950's shows that 20 or more schools of nursing had announced credit courses and/or degree programs for nurses in industry.(14) Five programs (Columbia University, Harvard University, Johns Hopkins, Yale University, and the University of Michigan) admitted industrial nurses to master degree programs. The USPHS loaned Emily M. Smith, an experienced occupational health nurse consultant, to Columbia in 1947-48 and to Yale in 1949-50 to develop and conduct programs of study in occupational health nursing. In 1951 Yale employed a full-time occupational health nurse faculty member. This position was filled until June 1961, and training for graduate students was provided during that 10-year period.

The University of Pittsburgh, Wayne State University, Seton Hall College in New Jersey, the University of Buffalo, St. John's University, New York University, Peabody College, The University of California in Los Angeles, the University of Washington, Simmons College, Boston College, Boston University, the University of Minnesota, the University of Chicago, Loyola University in Chicago - all offered credit courses for occupational health nurses or degree programs either in the field of industrial nursing or as a sub-specialty of public health nursing.

Only the University of Washington, Wayne State University, Boston College, and the University of Pittsburgh are known to have had full-time occupational health nurse educators to coordinate their baccalaureate degree programs in industrial nursing. All other schools utilized the part-time services of occupational health nurse consultants from State or Federal official agency occupational health units and/or nurses from industry.

In 1942 Public Health Curriculum Guide developed by a joint committee of the NOPHN and the USPHS was first published. This contained a unit on industrial hygiene.

The many inquiries from nurses working in industry, industrial physicians, management, and nurse educators about the industrial nursing content in B.S. degree programs led to the development of an Advisory Committee on Industrial Nursing with members from NOPHN's Industrial Nursing Section and from AAIN. Their report was approved by the Joint Committee of the NLN and NOPHN on "Integration of Social and Health Aspects of Nursing in the Basic Curriculum." This said in part:

> A A course in industrial nursing should not be included in the basic curriculum for the following reasons: The undergraduate curriculum is intended as a foundation only, containing theory and practice essential in any type of nursing. Its ultimate aim is the preparation of the student to function as a beginner in any of the major fields of nursing. If she wishes to advance to positions of greater responsibility or to a specialized branch of service in any field, she must obtain additional postgraduate study. ....
>
> B Because of the above factors, as well as the great pressure to shorten the curriculum, it does not seem advisable for schools to add any courses. However, because of the obvious need in the industrial field we recommend that schools of nursing examine carefully their own curricula and endeavor to give more emphasis to the industrial implications throughout the entire course of study.(15)

This statement set the pattern that has been followed by schools of nursing.

In 1946-47 Ella Louise Fortune, a graduate student at Catholic University, did a comparative study of the content of the courses and programs in industrial nursing with the duties of nurses employed in industry. At the time she began her study, there were 32 schools in the United States and the Territory of Hawaii offering public health nursing programs that had been approved by the Education Committee of the National Organization for Public Health Nursing.

Her study was limited to the determination of (1) the availability of courses and programs in industrial nursing, (2) the availability of advanced courses required for supervisory and consultant positions in industrial nursing, (3) the content of the courses, (4) the relative importance of items found in course outlines, and (5) a comparison of the items with the duties being performed by industrial nurses.

The following are selected quotes from Miss Fortune's summary and conclusions:

> The 8 schools offering only courses in industrial nursing have a total of 9 courses; the 5 schools offering programs in industrial nursing offer a total of 19 courses.
>
> Two schools accept courses in industrial nursing for credit toward a "Certificate in Public Health Nursing", 13 schools accept the courses for credit towards a bachelor's degree; 10 schools do not give graduate credit for courses in industrial nursing.

> There is little correlation between the frequency of the duties being performed by nurses in industry and the importance of the various topics being given in courses in industrial nursing, as rated by the nurses participating in this study.
>
> Nurses who have had theoretical preparation for industrial nursing are providing a broader nursing service to the employees in the duties they are performing than those nurses working in industry who have not been so prepared; also, the nurses who have had public health nursing experience are rendering more nursing service than those without this experience.(16)

1950-1960

League Exchange was a format instituted by the National League of Nursing Education (NLNE) and continued by the NLN as a means whereby its members could share experiences and ideas. The first Exchange published in 1952 was "Occupational Health Integration in the Yale University School of Nursing."(17) This was a report of the work that Emily M. Smith had done during her special assignment from the Public Health Service to Yale University November 1949 to June 1951.

During the 1950's,as was true in the latter part of the 1940's, many 1- or 2-day workshops were conducted for industrial nurses. The Extension Division of the University of Minnesota had conducted annual courses on topics of current interest to occupational health nurses, and as a result of their Fifteenth Annual Course held in the Spring of 1955, League Exchange Number 16,"Guide for the Orientation of Newly Employed Occupational Health Nurses," was published.(18)

League Exchange Number 19,"The Educational Responsibilities of the Nurse Consultant in Occupational Health," was a report of a workshop conducted at Yale University in September 1956 for 26 nurse consultants from Canada, Puerto Rico, and the United States.(19) The members of the workshop identified 10 understandings and abilities that they considered to be basic for effective practice for a nurse working in industry.

During the 1950's 3 research projects were conducted. Erma Barschak, Miami University, Ohio, conducted in 1954-1955 a study of occupational health nursing practices in the Ohio Valley.(20) In 1957 Wendell Smith, Bucknell University, conducted a study of industrial nursing function in Pennsylvania.(21) The third project conducted by Heide Henriksen identified what was being taught and what could be taught in collegiate basic nursing education programs. Six schools in Minnesota took part.(22)

The AAIN's Michigan Discussional held in 1954 brought together a group of 37 persons representing industrial nurses and physicians, management, and nursing educators to discuss the educational needs of the industrial nurse, particularly the nurse working alone. Problem areas involved in preparing the nurse to accept the varied responsibilities of industrial nursing were identified, and numerous recommendations were made.(23)

At the 1940 American Nurse Association (ANA) Biennial Convention a committee to study the possibility of unification of the several nursing organizations was established. By 1950 the members of the 6 national nursing organizations (AAIN, ACSN, ANA, NACGN, NLNE, and NOPHN) had accepted a general plan for two organizations. By 1952 all but the AAIN had agreed to merge into either the modified ANA or the new NLN.(24, 25)

In June 1952 when the ANA, ACSN, NLNE, and the NOPHN voted into existence the revised ANA and the new NLN, the members of the ANA Occupational Health Nurse Section asked that a committee be formed to study industrial nursing's place in the NLN.(26) At the first convention of the NLN in June 1953 the Committee's recommendation that an Occupational Health Nursing Interdivisional Council be formed was accepted. In response to the frequent requests from a small group of concerned and deeply committed occupational health nurse members of the NLN for a more active program in occupational health nursing, Mary Louise Brown, then assistant professor of occupational health nursing at Yale University, was employed by the NLN in 1956 to be the part-time occupational health nursing staff member.

In 1956 the AAIN and the NLN's Occupational Health Nursing Interdivisional Council established an NLN-AAIN conference committee. In 1957 two representatives from ANA and one from the PHS were added. This Committee developed the Guide for Evaluating and Teaching Occupational Health Nursing Concepts, League Exchange Number 24.(27) The Committee had been formed to consider the educational needs of occupational health nurses. They first identified the things peculiar to occupational health nursing and on this basis accepted the 10 understandings and abilities that nurses need to function as occupational health nurses as stated by the occupational health nurse consultant in League Exchange Number 19. These 2 concepts were then incorporated into the format of the "Self-Evaluation Guide for Collegiate Schools of Nursing." Part II, as prepared by the NLN, League Exchange Number 24, was widely distributed, but not widely used.

Two milestones in any review of nursing education in the United States were published by the Russell Sage Foundation: the publication of Esther Lucile Brown (Nursing for the Future) and Margaret Bridgman (Collegiate Education for Nursing). These publications, reflecting the changes in the philosophy of the leaders in nursing education, resulted in a more clearly defined statement on nursing education and much greater acceptance of college education as the base for professional nursing. In the year 1959 another milestone in nursing education was reached when the NLN Board of Directors decided that (1) the NLN will accredit no new programs in nursing that provide for specialized preparation at the baccalaureate level and (2) after a period of 5 years (or as of 1963) the NLN will accredit only those baccalaureate programs in nursing (without specialization) that include public health nursing as a part of the curriculum.(28) This action reemphasized that specialization in occupational health nursing, or in any area, was to be at the master's degree level. It also had the effect of including public health as an integral part of the basic baccalaureate program, thus enriching the program for all students of nursing.

1960-1969

The last of the 10-year periods, the present decade, saw attempts to resolve and crystallize 2 basic thrusts of the nursing profession: (1) defining technical and professional practice and the related levels of education for nursing and (2) reorganization of the organizations.

Following the discontinuance of the part-time occupational health nurse NLN staff position in 1961, the steering Committee of the Council on Occupational Health Nursing developed a project that they proposed be carried on at the NLN by an occupational health nurse who would be employed full time to give leadership to occupational health nursing education. The project director would (1) survey schools of nursing for their activities in the area of occupational health nursing; (2) develop pilot projects in selected universities for the development and evaluation of tools for the integration of occupational health nursing into the basic program; (3) provide consultation to schools as requested.

After the Steering Committee developed the project, they discussed it with the NLN General Director and others on the staff. In October 1962 Miss Dorothy Benning, Chairman of the Interdivisional Council on Occupational Health, and Mrs. Jane Lee met with the Steering Committee of the Department of Baccalaureate and Higher Degree Program to talk with them about the Occupational Health Council's proposed project. An ad hoc committee was then appointed to examine the educational needs in the field of occupational health nursing and to prepare a statement that could be used by both groups. This committee met in July 1963 and determined that a committee could not examine the educational needs in the field of occupational health nursing and prepare a statement that could be used by both groups. They suggested that a project be developed to identify those concepts essential to occupational health nursing and basic to the practice of all nursing and hence to be included in basic educational programs. This suggestion led to the development of a project and the negotiating of contracts by the Federal Government with the Boston College School of Nursing and The University of Tennessee College of Nursing, which were selected because they were in two different parts of the county and they presented two different plans. The Boston project was for one year.(29) The manual, of which this history is a part, reflects the experience of The University of Tennessee during the period February 1965 to August 1969.

Other publications in this area and at this time were "Selecting Occupational Health Services for Nursing Student Learning Experiences"(30) and the "Bibliography on Occupational Health Nursing"(31) by the NLN; "Selected Areas of Knowledge or Skills Basic to Effective Practice of Occupational Health Nursing" by the ANA.(32)

The ANA Committee on Education, which has as its function to study and to make recommendations for meeting the Association's responsibilities in nursing education, published as a position paper a report which sets forth 8 assumptions and the position that "education for those who work in nursing should take place in institutions of learning within the general system of education."(32) This report delineates the essential components of professional nursing and technical nursing practice.

The 1960's will also be remembered for the amount of Federal health-related legislation that was passed, including the extension to 1964 of the Professional Nurse Traineeship Program and the passage in 1964 of the Nurse Training Act. Of interest too are data from the Interagency Conference on Nursing Statistics in 1967 that an estimated 7.2% of the 19,500 occupational health nurses in the United Stated had a baccalaureate degree, 1.5%, an associate degree; and 1.0%, a master's degree.

Conclusion

The summary of events has indicated how the project described in this manual came about and has shown the long standing intense interest in the project goal of identifying educational content in nursing education for occupational health nursing. It is hoped that the data and theory presented will contribute to progress in occupational health nursing and nursing education by providing qualitative and quantitative methods for use by faculties in the evaluation of the nursing curriculum.

It is believed that the hypotheses set for this project by the ad hoc committee of the NLN in 1963 have been tested and found valid. Occupational health nursing content can be identified and the method developed for evaluation of the content can be used effectively.

Appendix A

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APPENDIX B

RATIONALE FOR THE UNIVERSITY OF TENNESSEE COLLEGE OF NURSING CURRICULUM

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Curriculum study usually begins when there are major dissatisfactions with the current program. This was our impetus. While we felt that our program has many strengths, we also recognized that major weaknesses existed; namely,

1 The need for strengthening the liberal arts portion of the program.

2 The need for an organizing focus in the nursing major, all within the usual time span by the baccalaureate program. Therefore, many choices have to be made.

In respect to (1): It was felt that in addition to a sound foundation in the behavioral and physical sciences which are supportive to the nursing major, an educated person needed to know more than "his own time, language, and culture". We also felt that the baccalaureate degree in nursing should include approximately the same requirements, exclusive of major subjects, as other baccalaureate degrees conferred by the parent university, the University of Tennessee - thus, the inclusion of foreign language, philosophy, anthropology, etc. It is our hope that the student will acquire a sound foundation rather than a superficial knowledge of the courses included as well as the desire to go on learning independently in these and other fields.

In respect to the Nursing major: The baccalaureate curriculum has evolved from the hospital school and has patterned itself after the geography of the hospital into Medical-Surgical, OB, Peds, etc. It has lacked an organizing focus. Montag has pointed out that:

Med-Surgical Nursing is a therapy
Maternity Nursing a physiological process
Nursing of Children an age group
Psychiatric Nursing a condition
Public Health Nursing a place.

Even if the teaching approach has not focused on these, there has been an influence on, and a deterrent to, creativity brought to bear by the service-centeredness of the curriculum divisions.

It is believed that one organizing concept that could be used is that of basic human needs common to all persons and the intervention both nursing and medically which can aid the individual in meeting these needs. This is based on a concept of man's attempt to maintain a dynamic equilibrium between his external and internal environment

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and his adjustment. It was felt that this concept could be used throughout the program in teaching the care of adults and children in all stages of wellness and illness and in all settings.

The early nursing courses would focus on the areas of human needs where stressors which are threatening to the integrity of the person can be removed or made less threatening by nursing intervention. Progression would be to the areas in which a specific need is altered through disease processes or other circumstances so as to require medical therapy for alleviation. The nurse would retain an independent function with respect to all but the specifically altered human need and would assume a colleague or dependent function with other disciplines in aiding the patient. Thus all nursing courses would focus on needs and ways of meeting these according to the situation and all would focus primarily on the professional nursing role. No courses have been identified by title. The real challenge now is for faculty to, within this framework, identify content, learning experiences and teaching approaches that will enable us to implement a new program.

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APPENDIX C

FIRST ATTEMPT AT FITTING FUNCTIONS AND RESPONSIBILITIES OF A PROFESSIONAL NURSE IN OCCUPATIONAL HEALTH INTO THEORETICAL FRAMEWORK

NEED SYSTEMS					Restorative
	Health Promotion	Specific Protection	Curative	Disability Limitation	Rehabilitation
Physiologic	Guidance relating to physical health 1 Assistance in health evaluation program --- Nursing role in counseling and interviewing Common human needs and their influence on individual and group behavior Concept of wellness Motivation of individuals and group behavior in health care Principles and methods of health teaching Health evaluation for an individual Characteristics of a work environment	Participation in environmental hygiene program 6 Health guidance relating to environment Participation in programs on specific physiologic problems --- Toxicology and industrial hygiene Environmental sanitation Processes used production or service	Emergency care for physical illnesses and injuries 11 Referral and additional care Assistance with health evaluation program Participation in immunization programs --- Emergency care Case-finding methods Health screening Development of immunization program	Assistance with health evaluation program 16 Assistance with job placement and re-assignment Continuing nursing care and follow-up --- Nursing follow-up (See Block 12)	Identification of employee's remaining abilities 21 Administration of physical therapy --- Rehabilitation process Nursing role in physical therapy
Safety	Assist in identification of environmental stresses and hazards 2 Guidance relating to safe living habits Interpretation of health insurance plans --- Characteristics of a health living environment Safety promotion Concept of prepaid health care	Participation in safety program 7 Guidance relating to use of safety measures' Assistance with disaster planning --- Concept of accident prevention Concept of accident susceptibility Safety statistics Disaster programs Food service	Assistance with job re-assignment 12 Maintenance of employee health records Interpretation of employee health to management Control of infectious diseases --- Role of nurse in job re-assignment Communication skills Legal aspects of occupational health nursing Control and treatment measures of infectious diseases	Assistance with job placement 17 --- Requirement of a job operation	Assistance with appropriate job placement 22 --- Application of Activity of Daily Living principles to work setting
Love and Belonging (Social)	Guidance relating to social adaptation 3 Cooperation with total community health program --- Influences on individual and group behavior Influences on and by an employee and plant Development of professional relationship with "well" individuals Identification of health needs and interests of groups Use of groups Organization of business establishments Social effects of industrial change Meaning of work to an individual and family Classification of workers Social effects of industrial relations Community health program	Interpretation of social welfare plans 8 Interpretation of governmental labor laws Participation in selected employee programs --- Social welfare plans and benefits State and Federal laws and regulations Women as workers (including homemakers) Aging employees	Participation in program on absence 13 Referrals Identification of individual and/or group disorganization --- System of referrals Absence programs (role of Nursing) Workmen's Compensation Act Social disorganization	Participation in program on absence 18 Nursing follow-up for continuing work --- Needs of individual and family during absence Social aspects of long-term illness Social aspects of job re-assignment	Interpretation to management re-employing handicapped Cooperation of community health facilities --- Return-to-work process Rehabilitiation facilities in community
Esteem (psychological)	Guidance relating to emotional health 4 Assistance with health evaluation program --- Characteristics of an emotionally healthy work setting Supervisory process and health Group interaction Emotional factors in industrial change Emotional factors in industrial relations Testing program	Participation in selected programs relating to mental health 9 --- Women as workers Aging workers Understanding of use of self in work setting	Emergency care for emotional crisis 14 Participation in program for addiction --- Emotional distress Addiction and the work setting		Guidance in adjustment and re-adjustment to work setting 24 --- Emotional aspects of rehabilitation Rehabilitation of emotionally ill employees
Self-Actualization	Guidance relating to self-development and growth 5 Development of nursing program to meet employee needs --- Self-responsibility for health behavior and care Individual development to fullest Identification of employee needs Analysis of work environment Health personnel as labor force members Health maintenance problems Nursing Program implementation		Development of nursing care plan in work setting 15 --- Promotion of self-recognition of lowered level of wellness Use of records in identification of unhealthy conditions	Nursing follow-up for completion of "work-life" 20 --- Nursing care on a continuing basis Continuity of care for an employee Employee and family needs in crisis	Promotion of full use of remaining abilities 25 --- Development of greatest potential of rehabilitated employee

Legend:
Above line -Functions and responsibilities of nurse. Below line - Knowledge and abilities to fulfill functions and responsibilities

Appendix D

Competencies and Suggested Actions of the Professional Nurse in Occupational Health

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HEALTH PROMOTION:

COMPETENCY		SUGGESTED NURSING ACTION
Physiological	Assesses physical health needs of employees	Identifies physical health needs by observation, interview, analysis of records, reports, examinations Correlates identified needs and age grouping Identifies groups of employees with special physical health needs
	Collaborates in planning for health promotion and maintenance in work setting	Participates on health team in formulating philosophy and objectives for meeting needs of employees based on current standards and established policies Communicates health needs of employees to health team Interprets occupational health nursing as a member of the intra-plant and extra-plant health team
	Intervenes to promote health maintenance	Organizes nursing aspects of health screening and evaluation program Conducts health interview Conducts screening tests, e.g., vital signs, electracardiogram, laboratory tests, vision and hearing tests Assists physician in physical examination procedures, e.g., draping, chaperoning Maintains records and reports for well employees Interprets examination findings to employee Guides employee to improved health habits through counseling, teaching, and demonstration, e.g., personal hygiene, diet, dental and general health care, rest, recreation Promotes positive attitudes toward health and health care among employees, family Interprets health-related information
Safety	Collaborates in assessing safety needs of employee and family	Identifies safety needs through observation, interview, and analysis of records and reports Identifies patterns of accident susceptibility Evaluates employee's environment for effectiveness of safety measures
	Intervenes to promote security of employee and family from economic stress due to non-occupational illness and injury	Interprets health and medical insurance plans Identifies patterns of health needs from analysis of records and reports and utilization of health care services Assists in compiling medical insurance claims Estimates impact of illness on family from claim data
Social	Assesses social health needs of employee and family	Identifies health need relating to social adaptation of employee and family through observation, interview, analysis of records and reports Correlates identified needs and developmental level and age grouping of employee Analyzes employee-employee relationships Analyzes employer-employee relationships Analyzes employee-family relationships Identifies groups of employees with special needs
	Collaborates in planning and intervening to promote social adaptation of employee and family	Collaborates in providing setting conducive to adaptation Interprets effect of total environment on health of employee and family Guides employee and family in social adaptation through counseling, interviewing, teaching, demonstration
	Collaborates in planning health maintenance activities for total community health program	Interprets occupational health nursing to community Communicates health needs of employee and family Coordinates occupational health program with organized community health program
Psychological	Assesses emotional health needs of employees	Identifies needs of employees through observation, interview, analysis of records Correlates identified needs and developmental level and age grouping Identifies groups of employees with special health needs
	Collaborates in planning and intervening to promote emotional health	Communicates identified needs to health team Interprets effects of total environment on emotional health of well, productive citizen Guides employee and family through counseling, interviewing, teaching, demonstration Collaborates in providing setting conducive to good emotional health
Self-Actualization	Assesses growth needs and health potential of employees	Identifies growth needs and health potential of employee through observation, interview, analysis of records Correlates identified needs and developmental level
	Collaborates in planning and intervenes to promote growth	Communicates identfied needs to health team Guides employee to attainment of growth through interviewing, counseling, teaching, and demonstration Provides nursing leadership in planning recreational and self-development programs in plant and community Promotes self-responsibility for health and health care Recognizes health team as members of the labor force and as individuals
	Participates in and conducts systematic studies relating to health of employees	Identifies health problems of employee and family in need of study Initiates studies and projects using systematic research methodology
	Collaborates in evaluating the total health promotion and health evaluation program	Appraises program and services based on philosophy, objectives, current standards, and policies Predicts future health needs and problems of employee, family, community, work environment Revises program and services based on changing needs and utilization of services Analyzes relationship of nursing to other health team members -- in-plant and community Evaluates nursing program based on philosophy, objectives, policies, legally recognized practice standards, and independent and dependent nursing functions Evaluates own performance, and personal and professional development Estimates budget needs for nursing program Keeps abreast of current thinking and direction of changes in nursing and delivery of health care

SPECIFIC PROTECTION:

COMPETENCY		SUGGESTED NURSING ACTION
Physiological	Collaborates in assessing the work setting for hazards to physical health	Identifies physical hazards to employee and family Observes and examines employee to prevent toxicity from environmental exposure Observes work environment for needed control measures Correlates relationship of employee health and physical environment Identifies aspects in work setting promoting health of employee
Safety	Collaborates in providing a safe environment	Serves as a member of the safety team Communicates safety needs and effect of environmental hazards on employee and family to safety and health team Recommends and promotes use of protective measures and equipment Observes adherence to sanitarian and food-handling regulations Guides employee and family in developing positive attitudes toward safety and protection Guides employee and family in safety, education through counseling, teaching, and demonstration Analyzes patterns of symptomology from records and reports. Communicates health needs for transcontinental and intercontinental travel to health team and individuals involved
	Collaborates in providing program to control communicable disease in work setting	Identifies need for immunizations based on travel regulations, agency recommendations, and in-plant data Administers immunizing agents as prescribed Evaluates and refers employees with communicable disease conditions for medical care
	Collaborates in planning control programs for community health problems	Recognizes influence of work environment on community health Analyzes community-plant relationship Communicates need for control programs to in-plant and extra-plant health teams Assists in planning in-plant and community programs for disasters
Social	Collaborates in assessing influence of social aspects of work environment on health	Identifies influences on health of employees from work setting Analyzes social influences from work setting and employee-family relationships on health of employee
Psychological	Collaborates in assessing influences on employee emotional health from work environment	Observes work environment for influences on emotional health of employee and family Identifies personal characteristics of employees in hazardous, stressful, and routine job operations Communicates special health needs of employees in hazardous, stressful, and routine jobs Analyzes emotional influences from work setting and employee-family relationships Predicts psychological effects of change in work environment on employees and families
Self-Actualization	Participates in and conducts systematic studies relating to environment	Identifies health problems present in environment Initiates studies and projects using systematic research methodology Applies findings in environmental control Communicates findings to health team and interested individuals and groups Participates in interdisciplinary studies and projects
	Collaborates in evaluating total program for environmental control	Appraises program based on philosophy, objectives, legal requirements, and policies Predicts future environmental problems Revises program based on health needs and utilization and results of program Evaluates nursing contribution to environmental control program based on philosophy, objectives, and independent and dependent functions

EARLY DIAGNOSIS AND PROMPT TREATMENT:

COMPETENCY		SUGGESTED NURSING ACTION
Physiological	Provides emergency care for physical injury and illness	Recognizes legal limitations for nursing Recognizes signs and symptoms of pathological conditions Carries out nursing diagnostic procedures to establish need for care Administers emergency care, e.g., aseptic techniques for lacerations, removing foreign bodies, splinting, administering oxygen, administering medication Communicates by interpreting pathological processes and implications to health team or appropriate individuals Provides for continuing care, e.g., medical treatment, return visits, transportation Begins rehabilitation process Maintains appropriate records and reports Organizes non-professional first aid services
	Intervenes to assist employee seeking medical care for identified disease process	Communicates with health facility Refers employee for continuing health and nursing care Guides employee in obtaining and carrying out medical care Follows-up on employee with illness
Safety	Collaborates in providing safe environment for employee with limited health problem	Identifies the demands on employee's health of job operation, e.g., stress, heavy lifting, walking, toxic materials Communicates health status of employee to health team or appropriate individuals Recommends placement of employee for employee's and co-workers' safety Observes employee for satisfactory placement
	Collaborates in promoting security of employee and family from economic stress due to occupational illness or injury	Complies with Workman's Compensation Act. Maintains appropriate records and reports
Social	Collaborates in assessing and providing service to control influences from employee and group disorganization or social change on health employee	Identifies health problems of employees related to disorganization or social change Recognizes effects of disorganization or social change on employee, work setting and community Analyzes influence of social change or disorganization on health and behavior patterns of employee and family Communicates to health team effects of social change causing disorganization Guides employee and family in coping with effects of social change or disorganization
	Collaborates in assessing and providing services for control of short-term absence	Identifies employee with high-rate of absences from records and reports Identifies causes of behavior patterns from study of total environment Guides employee in seeking remedial care Determines causes of absence of employee and interprets to appropriate individuals
Psychological	Provides emergency care for emotional crisis of employee	Identifies immediate stressors and symptoms of and reactions to crisis Establishes and maintains therapeutic nurse-patient relationship Reduces anxiety level of employee, family, co-workers Provides emotional support Refers employee for continuing health and nursing care Communicates needs of employee to health team or appropriate individuals
	Assesses effect of stress on employee	Identifies signs and symptoms of stress and tension Communicates needs of employee to health team or appropriate individuals
Self-Actualization	Creates climate conducive for employee to seek health care	Demonstrates attitude of acceptance of employee Provides assistance needed for employee to recognize and meet own health needs

DISABILITY LIMITATION:

	COMPETENCY	SUGGESTED NURSING ACTION
Physiological	Provides care to relieve signs and symptoms of illness and injury	Identifies employees with long-term illness Develops nursing care plan based on identified needs Carries out medical directives, e.g., dressing changes, administration of medication, rest periods Performs technical nursing skills, e.g., checking vital signs, heat or cold applications Observes employee for progressing signs of disease process Communicates employee's condition to health team or appropriate individuals Collaborates in providing continuing health and nursing care Evaluates employee's and family's understanding of physical aspects of disease conditions, their understandings of medical orders and ability to carry out Teaches skills and provides information relating to care of employee, e.g., temperatures, administration of medications, dressing changes
Safety	Collaborates in providing safe environment for employee with disease process	Identifies the demands on employee's health of job operations Communicates health status of employee to health team or appropriate individuals Recommends placement of employee for employee's and co-worker's safety Observes employee for satisfactory job placement Recognizes effect of prescribed drugs on employee
Social	Assesses socio-economic needs of employee and family with disease process	Observes employee and family for effects of illness Observes effect of employee's illness on work setting Identifies problems of employee and family coping with disease process, economic stress, social limitations Assists in compiling insurance claims
	Collaborates on planning and intervenes to enable adaptation of employee and family to illness	Observes employee and family in their total environment Guides employee and family in coping with effects of illness Communicates needs of employee and family to health team or appropriate individuals Guides employee and family in establishing new socialization patterns Collaborates in continuing health and nursing care through guidance, follow-up, support Assesses employee's and family's socio-economic needs during absence from work
Psychological	Assesses emotional needs of employee and family where employee has disease	Observes psychological effect of illness on employee and family Observes psychological effect of employee's illness on co-workers Identifies with employee and family problems in coping with disease process, emotional stress Evaluates employee's and family's understanding of emotional aspects of illness
	Plans and intervenes to enable employee and family to cope with emotional aspects of illness	Provides emotional support Guides employee and family and co-workers in adjusting to illness Guides employee and family during terminal illness
	Provides care for employee with mental illness	Recognizes psycho-pathological process Communicates needs of employee and family to health team or appropriate individuals Guides employee and family in obtaining medical care Collaborates in providing continuing care, e.g., provision of meaningful activity, transportation, follow-up, emotional support Guides employee and family in meeting physiological and safety needs Guides co-workers associated with employee
Self-Actualization	Collaborates in providing opportunity for meeting growth potential needs of employee	Identifies opportunities for continued growth of employee Communicates identified needs of employee
	Collaborates in evaluating total program for ill and injured employees	Appraises program based on philosophy, objectives, and policies Predicts future needs and changes in health care delivery Revises program based on changing needs and utilization of service Evaluates nursing contribution based on nursing philosophy and objectives, policies, legally recognized practice standards, independent and dependent nursing functions

REHABILITATION:

COMPETENCY		SUGGESTED NURSING ACTION
Physiological	Collaborates in assessing physical needs	Identifies remaining abilities through observation, interview, records and reports and testing Communicates abilities to appropriate individuals Interprets philosophy of rehabilitation
	Plans and intervenes to promote fullest functioning	Applies principles of Activities of Daily Living to work setting Administers selected physical therapy, e.g., exercises, hydro-therapy, heat applications, supportive equipment Teaches self-help skills, e.g., transportation, housekeeping, personal care, transfer Communicates identified needs to health team or appropriate individuals Collaborates in providing continuing health and nursing care
Safety	Collaborates in providing safety of environment	Observes employee's total environment for safety and adaptation for independent functioning Analyzes attitudes of employee toward safety Collaborates as described under Disability Limitations Safety and Protection in placement of employee Observes employee for suitable placement in work setting
Social	Assesses socio-economic needs of employee and family	Identifies problems of employee in work setting and of employee and family in home and community Observes employee and family in coping with the social setting Identifies needs of co-workers in assisting with rehabilitation process
	Plans and intervenes to promote social adaptation of employee	Communicates needs of employee, family and co-workers Counsels with employee, family, and co-workers Recommends environmental adjustments to meet employee needs Observes employee for adjustment to disability and social setting
	Collaborates with community health facilities	Interprets occupational health nursing contribution to restorative program Interprets community rehabilitation services to health team or appropriate individuals Communicates employee and family needs to health team or appropriate sources
Psychological	Assesses emotional needs of employee and family	Identifies needs of employee in work setting and of employee and family in home and community Observes employee and family in coping with affects of disability Identifies needs of co-workers in accepting employee
	Plans and intervenes to promote emotional adjustment of employee, family, co-workers	Counsels employee and family in adjustment to disability Counsels co-workers in expectations and acceptance of employee Communicates identified needs Provides emotional support for employee and family
Self-Actualization	Plans and intervenes to promote fullest restoration potential	Communicates and interprets growth needs Guides employee and family to positive actions and attitudes by counseling, teaching, demonstration Recognizes productive work as a means of self-actualizing
	Collaborates in evaluating rehabilitation program	Appraises program based on philosophy, objectives, and policy Predicts future needs and changes in rehabilitation process Revises program based on changing needs and utilization of service Evaluates nursing contribution to program based on nursing philosophy, objectives, and independent and dependent nursing functions

APPENDIX E

The University of Tennessee College of Nursing Curriculum*

NOTE: Figures under Course Title represent credit hours and lecture-laboratory class time.

Course	Description
Anatomy 1N 4(3-2)	A study of the structure of the human body and its parts.
Biochemistry 1N 2(2-0)	General Chemistry. An introduction to elementary principles of chemistry. Lectures, demonstrations and conferences.
Biochemistry 2N 4(3-3)	Organic Chemistry and Biochemistry. Properties and behavior of physiochemical systems and elementary organic chemistry; biochemistry of foodstuffs, digestion, and absorption. Prerequisite: General Biochemistry 1N.
Biochemistry 3N 4(3-4)	Biochemistry. A continuation of 2N. Topics include blood and other tissues, intermediary metabolism and the excretions. Laboratory work is devoted to quantitative analysis of blood and urine.
Microbiology 1N 3(2-4)	Microbiology. An introductory course emphasizing the morphology, growth, modes of transmission, and relationship to diseases of pathogenic microorganisms. Means of protecting the patient and the nurse from infection are emphasized.
Physiology 1N 3(2-2)	A study of the functions of the human body.
Physiology 2N 4(3-2)	A continuation of physiology 1N.
Preventive Medicine 1N 2(2-0)	Biostatistics. Lectures and exercises dealing with the collection, tabulation, and graphic representation of quantitative data. The student studies frequency distributions, centering constants, dispersion constants, and simple correlation.

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*As listed in The Nursing Bulletins for 1966-68, 1968-69, and 1969-70. The University of Tennessee, Knoxville, Tennessee.

Psychology 1N 3(3-0)	Human Growth and Development. Basic consideration is given to the behavioral changes from infancy through adulthood. Using these data as a background, the student becomes familiar with modern theoretical positions on the dynamic forces associated with this behavior. Attention is given to both nomothetic principles and individual differences
Psychology 2N 3(2-2)	Human Growth and Development. Continuation of Psychology 1N
Psychology 3N 3(2-0)	Psychology of Adjustment.
Psychology 4N 3(3-0)	Personal Adjustment. This course covers psychological development of adolescence through senescence, personality characteristics and changes through time, and the dynamics of adjustments to each phase.
Psychology 5N 3(3-0)	The Scientific Method in Nursing. A course including individual and group discussions based on the origin, selection, presentation and evaluation of problems in the care of patients
Nursing as a Social Force I 3(3-0)	A course of lectures, conferences and observations designed to introduce the student to professional nursing as a social force and a service to mankind. The historical development of nursing is considered. Introduction is made to a concept of the professional nursing role and its components with emphasis on the family as a unit of society.
Nursing of Children and Adults I 6(4-6)	Classroom and laboratory study designed to provide the student with concepts, principles and skills basic to nursing. Focus is on the human needs common to all persons and on the nursing care and intervention which may assist the patient in maintaining a dynamic equilibrium.
Nursing of Children and Adults II 5(3-6)	A continuation of Nursing of Children and Adults I

Pharmacology and Nutrition Survey 3(3-0)	Introduction to basic nutrition; a course to increase basic knowledge, understanding and skills prerequisite to the correlated study of applied nutrition throughout the basic curriculum. The pharmacology survey is a course designed to introduce the student to understanding and responsibilities prerequisite to the safe and accurate administration of drugs. This includes reliable sources of drug information, standards, classification and recognition of social problems associated with indiscriminate use of drugs.
Anthropology 3(3-0)	This course concerns itself with development of man in his physical and cultural aspects through time and space. Genetics and embryology are among a background disciplines covered. Emphasis is given to sub-cultures in the mid-south.
Physics 3(2-2)	A course of lectures and laboratory exercises which provides the student with a fundamental knowledge of the basic principles of physics and their application to nursing in the care of patients and the operation of equipment. This course includes the equivalents used in the hospital; basic principles which apply to body mechanics and normal functioning of the body; forces; pressure; power; energy; friction; motion; gases; nature and measure of heat, light and sound; and electricity.
Nursing of Children and Adults III 11(6-15)	Classroom and laboratory study designed to develop the ability to plan, give and evaluate nursing care to hospitalized persons and to gain knowledge of the facets of comprehensive nursing care in the home and in the community. Content gives evidence that the organizing concept of basic human needs progresses to areas in which the needs are altered through disease processes in the child and the adult.
Nursing of Children and Adults IV 11(6-15)	A continuation of Nursing of Children and Adults III.
Nursing of Children and Adults V 12(7-15)	A continuation of Nursing of Children and Adults III and IV

Nursing of Children and Adults VI 11(6-15)	A continuation of the basic nursing concepts with major emphasis on the principles and skills, which are utilized providing comprehensive nursing care for the patients in maternity, psychiatry, and public health. Clinical learning experiences are selected in a variety of locations including the home, the clinic, the hospital, the health department, the physicians' office, and other community health and welfare agencies. All learning experiences emphasize continuity and co-ordination of health care. Emphasis is placed on counseling and teaching individual patients and groups of patients including families.
Nursing of Children and Adults VII 11(6-15)	A continuation of Nursing and Children and Adults VI
Nursing as a Social Force II 3(3-0)	A discussion of the history and trends of professional nursing. Emphasis is placed on the personal and professional responsibilities of the professional nurse.
Patient-Centered Nursing 9(6-9)	Classroom and laboratory study of the nursing care of selected patients during illness and convalescence. Guided practice in analyzing the patients' physical, emotional and social needs and in planning and executing a program of nursing care to help meet these needs. Includes field trips to selected community agencies
Preventive Medicine 2N 3(3-0)	Epidemiologic Approach to Health and Disease. Focus on basic human needs is directed toward the community as a whole. Evolving philosophy and scope of the public health movement are considered. Multiple influences affecting health and disease in contemport living are emphasized. Concepts from biostatistics and epidemiology are utilized in assessing community health status and planning programs of protection and health promotion. Changing patterns in community organization and in the funding and delivery of health services are examined. Open to all students in Medical Units.

* U.S. GOVERNMENT PRINTING OFFICE : 1971 O—429-495